English Medium

VISION IAS

TEST-19

C

Time Allowed: Two Hours

GENERAL STUDIES (P) 2022 – Test – 3488

Maximum Marks: 200

Ecology and Environment (EnvironmentalActsPoliciesand Conservation Strategies)

SYLLABUS

cology and Environment (Environmental ActsPoliciesandConservation Strategies)

- Environmental Monitoring and Impact
- Assessment
- Environmental laws and policies
- Sustainable Development
- Natural Resource conservation
- Environmental Problems
- Energy Crisis andNon-ConventionalSource.

PT-2022

REFERENCES

+

Current Affairs (November2021)

VISIONIAS

www.visionias.in

Test Booklet Series

C

TEST BOOKLET

GENERAL STUDIES (P) 2022 – Test – 3488

Time Allowed: Two Hours **Maximum Marks: 200**

INSTRUCTIONS

1. IMMEDIATELY AFTER THE COMMENCEMENT OF THE EXAMINATION, YOU SHOULD CHECK THAT THIS BOOKLET DOES **NOT** HAVE ANY UNPRINTED OR TURN OR MISSING PAGES OR ITEMS, ETC. IF SO, GET IT REPLACED BY A COMPLETE TEST BOOKLET.

2. ENCODE CLEARLY THE TEST BOOKLET SERIES **A, B, C** OR **D** AS THE CASE MAY BE IN THE APPROPRIATE PLACE IN THE ANSWER SHEET.

3. You have to enter your Roll Number on the Test Booklet in the Box provided alongside. **Do NOT** write anything else on the Test Booklet.

4. This Test Booklet contains **100** items (Questions). Each item is printed in **English.** Each item comprises four responses (answers). You will select the response which you want to mark on the Answer Sheet. In case you feel that there is more than one correct response with you consider the best. In any case, choose **ONLY ONE** response for each item.

5. You have to mark all your responses ONLY on the separate Answer Sheet provided. See direction in the answers sheet.

6. All items carry equal marks. Attempt all items. Your total marks will depend only on the number of **correct responses** marked by you in the answer sheet. For **every incorrect** response **1/3rdof the allotted marks** will be deducted.

7. Before you proceed to mark in the Answer sheet the response to various items in the Test booklet, you have to fill in some particulars in the answer sheets as per instruction sent to you with your Admission Certificate.

8. After you have completed filling in all responses on the answer sheet and the examination has concluded, you should hand over to Invigilator only the answer sheet. You are permitted to take away with you the Test Booklet.

9. Sheet for rough work are appended in the Test Booklet at the end.

DO NOT OPEN THIS BOOKLET UNTIL YOU ARE ASKED TO DO SO

Join Telegram- https://t.me/upsc_success_time1

1. With reference to Coalition Against Wildlife Trafficking (CAWT), consider the following statements:

1. It is a voluntary public-private coalition that focuses on growing threats to wildlife from poaching and illegal trade.
2. India is a part of this coalition.

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

2. Consider the following statements with respect to the Best Tourism Villages (BTV) Initiative:

1. The BTV initiative has been launched by United Nations World Tourism Organization (UNWTO).
2. Recently, Telangana's Pochampally village was selected as one of the best tourism villages in India.

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

3. Glowing Glowing Gone Campaign is launched in partnership by United Nations Environment Programme (UNEP) for

(a) combating illegal wildlife trade.
(b) protection of the ozone layer.
(c) reduction of methane emissions.
(d) protection of coral reefs.

4. With reference to the Vienna Convention, consider the following statements:

1. The Vienna Convention is the first international agreement dedicated to the protection of the ozone layer.
2. The Montreal Protocol under the convention includes a legally binding progressive reduction in the use of Chlorofluorocarbons.

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

5. Marine debris can be very harmful to marine life in the gyre. Seals and other marine mammals are especially at risk. They can get entangled in abandoned plastic fishing nets, which are being discarded largely due to inclement weather and illegal fishing. Seals and other mammals often drown in these forgotten nets.

Which of the following phenomena is being described in the passage given above?

(a) Bottom fishing
(b) Kite fishing
(c) Fly fishing
(d) Ghost fishing

6. 'Mysuru Declaration' is associated with:

(a) Promoting inclusive and accountable local self governments.
(b) Ensuring safety of women at workplaces.
(c) Increasing the composition of renewable energy in the total energy mix of the country.
(d) Availability of vaccines for COVID-19 across the country.

Join Telegram- https://t.me/upsc_success_time1

7. 'Spotlight initiative' is associated with:

(a) Increasing episodes of coral bleaching due to climate change.
(b) Increase in cases of violence against women.
(c) Use of solar energy for electrification of hard to reach areas.
(d) Misuse of crypto currency platforms for illegal activities.

8. The Greenhouse Gas Protocol (GHG Protocol) classifies a company's GHG emissions into three 'scopes'. In this context, consider the following pairs:

Scope		***Sources of Emission***
1. Scope 1 Emissions	:	Direct emissions from owned or controlled sources
2. Scope 2 Emissions	:	Indirect emissions from the generation of purchased energy
3. Scope 3 Emissions	:	Indirect emissions occurring in the value chain of the company

Which of the pairs given above are correctly matched?

(a) 1 and 2 only
(b) 2 and 3 only
(c) 1 and 3 only
(d) 1, 2 and 3

9. Consider the following Global Conventions:

1. Convention on Migratory Species (CMS)
2. Convention on International Trade in Endangered Species (CITES)
3. RAMSAR Convention
4. United Nations Convention to Combat Desertification (UNCCD)

Arrange the above conventions in the correct chronological order of their entering into force.

(a) 1-3-2-4
(b) 2-3-4-1
(c) 2-3-1-4
(d) 1-2-3-4

10. The National Green Tribunal (NGT) has the jurisdiction to settle disputes related to which of the following acts?

1. Wildlife Protection Act, 1972
2. Biological Diversity Act, 2002
3. Public Liability Insurance Act, 1991
4. Indian Forest Act, 1927

Select the correct answer using the code given below.

(a) 1, 2 and 3 only
(b) 1 and 4 only
(c) 2 and 3 only
(d) 1, 2, 3 and 4

11. Whenever forest land is diverted for non-forest purposes, Compensatory Afforestation is mandatory under which of the following Acts?

(a) Biological Diversity Act, 2002
(b) Forest (Conservation) Act, 1980
(c) Environment (Protection) Act, 1986
(d) Indian Forest Act, 1927

12. In the context of recently launched e-amrit, consider the following statements:

1. E-Amrit portal would be a one-stop information destination on global water pollution.
2. The portal has been developed under the UK-India joint roadmap 2030.

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

Join Telegram- https://t.me/upsc_success_time1

13. Which of the following is/are correct regarding United Nations Forum on Forests (UNFF)?

1. It is mandated to promote the management, conservation and sustainable development of all types of forests.
2. It was established as a subsidiary body to the UNEP.
3. It is composed of all Member States of the United Nations.

Select the correct answer using the code given below.

(a) 1 only
(b) 2 and 3 only
(c) 1 and 3 only
(d) 1, 2 and 3

14. Consider the following statements with respect to the National Oil Spill Disaster Contingency Plan (NOS-DCP):

1. It mandates the government of every coastal State to constitute a State-level Oil Spill Crisis Management Group.
2. Ministry of Ports, Shipping, and Waterways is the designated national authority for oil spill response in Indian waters under the Plan.

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

15. Consider the following statements with reference to International Court of Justice (ICJ):

1. It is one of the organs of United Nations (UN).
2. It is composed of judges with a term of nine years, who are eligible for re-election.
3. The Court decides disputes between countries, based on the voluntary participation of the States concerned.

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 and 3 only
(c) 1 and 3 only
(d) 1, 2 and 3

16. It was a land-based oil spill that occurred in Uzbekistan in 1992. The oil coming out of the well caught fire and burnt for two months resulting in the spilling of 88 million gallons of oil. Emergency dikes failed to contain the oil and it was sent into the Russian Arctic. It is often referred to as 'Asia's worst oil spill'.

Which of the following oil spill incidents is best described by the above passage?

(a) The Mingbulak Oil Spill
(b) Exxon Valdez Oil Spill
(c) MV Wakashio Oil Spill
(d) The Amoco Cadiz Oil Spill

Join Telegram- https://t.me/upsc_success_time1

17. With reference to the gaseous and particulate pollutants present in the troposphere, consider the following statements:

1. Nitrogen dioxide damage the leaves of plants and retard the rate of photosynthesis.
2. Carbon dioxide binds to haemoglobin to form carboxyhaemoglobin which reduces the oxygen-carrying capacity of the blood.
3. The presence of particulate matter in polluted air catalyses the oxidation of sulphur dioxide to sulphur trioxide.

Which of the statements given above are correct?

(a) 1 and 2 only
(b) 2 and 3 only
(c) 1 and 3 only
(d) 1, 2 and 3

18. With reference to Antarctic Treaty, consider the following statements:

1. India is the founding party to this treaty.
2. It designates Antarctica as a natural reserve, devoted to peace and science.

Which of the statements given above are ***not*** correct?

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

19. The Sievert is the International System of Units related to

(a) measuring average thickness of ozone layer over the earth's surface.
(b) level of mercury contamination in various water bodies.
(c) measuring biological impact of ionizing radiation on human body.
(d) effect of climate change on human health.

20. Consider the following statements regarding the Swachh Sarvekshan 2021 Report:

1. The survey is conducted by Ministry of Housing and Urban Affairs.
2. The survey is conducted annually both in rural and urban areas.

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

21. Which of the following best describes the technology called Selective Catalytic Reduction (SCR)?

(a) It is a technology that uses ammonia to convert NOX to nitrogen.
(b) It is a technology that uses oxygen in excess to convert the harmful carbon monoxide to carbon dioxide.
(c) It is a method that uses electric charge to remove impurities in air.
(d) It is a technology that reduces sulphur dioxide to sulphur.

22. With reference to Black Carbon, consider the following statements:

1. It is a gaseous substance that results from the incomplete combustion of fossil fuels and biomass.
2. It remains in the atmosphere for a shorter period of time and contributes to climate change.
3. It lowers the albedo of Earth's surface that causes temperature rise.

Which of the statements given above is/are correct?

(a) 2 only
(b) 1 and 3 only
(c) 2 and 3 only
(d) 1, 2 and 3

Join Telegram- https://t.me/upsc_success_time1

23. Consider the following statements regarding Sea Snot :

1. It refers to waste material released by whales during mass migration.
2. It is highly beneficial to marine ecosystem.

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

24. Consider the following statements with reference to Chemical Oxygen Demand (COD):

1. It represents the amount of oxygen required by microorganisms to break down the organic matter present in water at a specified temperature.
2. COD measurements are used as an indicator of the size of a wastewater treatment plant required for a specific location.

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

25. Consider the following statements regarding Arsenic pollution:

1. Arsenic has no smell or taste.
2. Arsenic is a carcinogenic agent.
3. Arsenic is the most common heavy metal pollutant found in India's rivers.

Which of the statements given above is/are correct?

(a) 1 only
(b) 1 and 2 only
(c) 2 and 3 only
(d) 1, 2 and 3

26. In the context of the environment, 'Carbon Pricing' is best described as

(a) increase in the emission outside a region as a direct result of the policy measures to cap emissions in the region.
(b) the practice of estimating the environmental cost of organic entities in terms of the amount of carbon present in them.
(c) tax evasion mechanisms used by emitters to avoid paying taxes for greenhouse gas emissions.
(d) shifting of burden for damage from GHG emissions by assigning the external costs to the emissions emitted by any entity.

27. An innovative Bubble Curtain Technology was deployed in the Yamuna river to:

(a) monitor the migration of Ganges river dolphin
(b) stop plastic from entering the Yamuna river
(c) prevent seasonal foaming of Yamuna river
(d) beautify the heritage places along the Yamuna river stretch

28. With reference to the Blue Carbon Ecosystem, consider the following statements:

1. The carbon sequestering capacity of a coastal blue carbon ecosystem is more than those of tropical forests.
2. The Blue Carbon Initiative for securing the Blue Carbon Ecosystem is an initiative of Conservation International.

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

VISION IAS

Join Telegram- https://t.me/upsc_success_time1

29. With reference to the fluoride ion concentration in drinking water, consider the following statements:

1. Soluble fluoride ions in drinking water make the enamel on teeth much harder.
2. The optimum level of fluoride in drinking water is up to 1 ppm.
3. Methemoglobinemia disease is caused by the excess of fluoride ions in drinking water.

Which of the statements given above are correct?

(a) 1 and 2 only
(b) 1 and 3 only
(c) 2 and 3 only
(d) 1, 2 and 3

30. Which of the following best describes the 'Virtual water'?

(a) Water involved in the production and trade of food and non-food commodities and services
(b) Rainwater collected from rooftops to an underground or over-ground holding tank
(c) Untapped groundwater occurring in the saturated soil and rock below the water table
(d) Water saved in commercial buildings through better mechanical and plumbing systems and modern architectural designs

31. 'Nairobi Declaration' is associated with:

(a) Disaster risk reduction
(b) Combating desertification
(c) Renewable energy
(d) Conserving migratory species

32. Recently the 26th Conference of the Parties (COP 26) to the UNFCCC was held. In this context, consider the following statements with reference to COP:

1. Conference of Parties is the supreme decision-making body of the United Nations Framework Convention on Climate Change.
2. Presidency of COP rotates among the five permanent members of the UN Security Council.

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

33. Consider the following statements with regard to installed renewable energy capacity in India:

1. India's rank in renewable power installed capacity is at 4th place globally.
2. India is top-ranked in installed solar power capacity.
3. The government plans to establish a renewable energy capacity of 1000 GW by 2030.

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 and 3 only
(c) 1, 2 and 3
(d) 2 only

Join Telegram- https://t.me/upsc_success_time1

34. Indoor air pollution is the degradation of indoor air quality by harmful chemicals and other materials. In this context, which among the following are the indoor air pollutants:

1. Radon
2. Asbestos
3. Carbon Monoxide
4. Formaldehyde

Select the correct answer using the code given below.

(a) 1 and 2 only
(b) 2 and 3 only
(c) 3 and 4 only
(d) 1, 2, 3 and 4

35. Which of the following countries border the Gulf of Oman?

1. Iran
2. Saudi Arabia
3. United Arab Emirates
4. Pakistan

Select the correct answer using the code given below.

(a) 1 and 2 only
(b) 1, 3 and 4 only
(c) 2, 3 and 4 only
(d) 1, 2, 3 and 4

36. Consider the following statements with respect to Indo-Pacific Oceans Initiative Partnership (IPOIP):

1. It is an open, non-treaty based initiative by India for cooperation and collaborative solutions to challenges in indo-pacific region.
2. The main objective of the IPOIP is to ensure the safety, security, and stability of the maritime domain.

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

37. In the context of pollution control technologies, consider the following statements with respect to Flue Gas Desulfurization:

1. This technology uses Ammonia as a reducing agent to convert oxides of sulfur to sulfur.
2. It is accomplished through either a wet or a dry process.
3. Flue Gas Desulfurization products are used in cement manufacturing and agricultural applications.

Which of the statements given above is/are correct?

(a) 2 only
(b) 2 and 3 only
(c) 1 and 3 only
(d) 1, 2 and 3

38. The Great Pacific Garbage Patch is a collection of marine debris in the North Pacific Ocean. In this context, which of the following ocean currents surround the patch?

(a) Florida current, Antilles current, Canary current and Azores current
(b) North Pacific current, Subarctic current, Alaska current, California current
(c) North Pacific current, Anadyr current, Bering current and Aleutian current
(d) California current, North Equatorial current, Kuroshio current and North Pacific current

Join Telegram- https://t.me/upsc_success_time1

39. With reference to the Global Methane Pledge, Consider the following statements:

1. The Global Methane Pledge aims to cut 30% of methane emissions by 2050.
2. The pledge was taken at the United Nations Climate Change COP-26, Glasgow.
3. India along with the United States are the signatories to the Global Methane Pledge.

Which of the statements given above is/are correct?

(a) 1, 2 and 3
(b) 2 and 3 only
(c) 1 only
(d) 2 only

40. In the context of the environment, which of the following statements best describes 'Global Stocktake'?

(a) It refers to the proposed review of the impact of countries' climate change actions.
(b) It is the global estimation of time required to phase out consumption and production of hydrocarbons.
(c) It recognises the five main carbon pools or reservoirs in forests globally Marrakesh accords.
(d) It is the combination of best practices globally to phase out coal-based power by 2030.

41. Taj Trapezium zone is a defined area around the Taj Mahal to protect the monument from pollution. In this context, consider the following statements:

1. The area has been constituted by the Central Government under the Air (Prevention and Control of Pollution) Act, 1981.
2. It includes the world heritage sites of Taj Mahal, Agra Fort and Fatehpur Sikri.

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

42. Consider the following statements regarding the Forest (Conservation) Act, 1980:

1. It was enacted after repealing the Indian Forest Act 1927.
2. The Act defines forests as areas recorded as "forest" in any government record, irrespective of ownership, recognition and classification.

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

VISION IAS

Join Telegram- https://t.me/upsc_success_time1

43. Recently the BASIC countries have been in news as a climate change alliance. With reference to the BASIC group, consider the following statements:

1. The BASIC group was formed as a part of an agreement at the Paris Climate Summit.
2. The group includes Bangladesh, Sri Lanka, India, and China.
3. The group stands for the cause of extensive climate finance which the developed countries have failed to deliver.

Which of the statements given above is/are correct?

(a) 1 and 3 only
(b) 3 only
(c) 1, 2 and 3
(d) 2 only

44. The Wildlife Protection Act, 1972 provides for the setting up of which of the following?

1. Wildlife Crime Control Bureau
2. National Tiger Conservation Authority
3. Central Zoo Authority
4. Animal Welfare Board of India

Select the correct answer using the code given below.

(a) 1, 2 and 3 only
(b) 2 and 3 only
(c) 1 and 4 only
(d) 1, 2, 3 and 4

45. With reference to Compensatory Afforestation Fund Act, 2016 consider the following statements:

1. The funds collected under the Act are equally distributed between the Centre and the state where the forest is cleared.
2. The States having more than 75% forest land need not provide non-forest lands for the purpose of compensatory afforestation.

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

46. Which of the following countries possess Anti Satellite Weapon System?

1. United Kingdom
2. United States of America
3. China
4. India
5. Russia

Select the correct answer using the code given below.

(a) 2, 3, 4 and 5 only
(b) 3, 4 and 5 only
(c) 1, 2 and 5 only
(d) 1, 2, 3 and 4

47. In the context of International Protocols on air pollutants, consider the following pairs:

Protocols		***Associated Pollutant***
1. Helsinki	:	Nitrogen oxide
2. Sofia	:	Sulphur dioxide
3. Geneva	:	Volatile Organic Compounds (VOCs)

Which of the pairs is/are correctly matched?

(a) 1 and 2 only
(b) 2 and 3 only
(c) 3 only
(d) 1, 2 and 3

Join Telegram- https://t.me/upsc_success_time1

48. With reference to the United Nations Convention to Combat Desertification (UNCCD), consider the following statements:

1. It is the sole legally binding international agreement linking environment and development to sustainable land management.
2. The 'trends in carbon stocks below and above ground' are a progress indicator used by UNCCD in its latest strategic framework to combat land desertification and droughts.

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

49. Consider the following statements with respect to the 'Water Plus city' tag:

1. The tag is given to cities for adequate depository of water to meet its requirements for the next ten years.
2. The certification is awarded to cities under the Swachh Bharat Mission and Swachh Survekshan assessment.

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

50. Consider the following statements regarding the Convention on Biological Diversity:

1. The convention comes into force on December 1993.
2. The Secretariat of the Convention on Biological Diversity (SCBD) is based in Montreal, Canada.
3. It covers biodiversity at all levels: ecosystems, species and genetic resources.

Which of the statements given above are correct?

(a) 1 and 2 only
(b) 2 and 3 only
(c) 1 and 3 only
(d) 1, 2 and 3

51. Consider the following statements with respect to nuclear wastes:

1. The plutonium-239 isotope is produced as a by-product during uranium fission.
2. Radon can diffuse through rocks and soils into the atmosphere.

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

52. Consider the following statements regarding IUCN Green Status of Species:

1. It provides a tool for assessing the recovery of species population and measuring conservation success.
2. Species assessed on the Green List are no longer in need of conservation.

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

Join Telegram- https://t.me/upsc_success_time1

53. Consider the following pairs with reference to the generation of biofuel and their source:

Biofuels		***Food Crop***
1. 1st Generation	:	Rice Husk
2. 2nd Generation	:	Corn
3. 3rd Generation	:	Specially engineered Algae

Which of the pairs given above is/are correctly matched?

(a) 1 and 2 only
(b) 2 and 3 only
(c) 1 and 3 only
(d) 3 only

54. Consider the following statements with reference to the South Asia Wildlife Enforcement Network (SAWEN):

1. It is an intergovernmental wildlife law enforcement support body launched for curbing illegal wildlife trade.
2. SAWEN was launched by ASEAN member countries.
3. It operates its activities from the Secretariat based in Kathmandu, Nepal.

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 and 3 only
(c) 1 and 3 only
(d) 1 and 2 only

55. Consider the following statements regarding the G20 Global Smart Cities Alliance :

1. The World Economic Forum serves as the secretariat for the G20 Global Smart Cities Alliance.
2. It is open to G20 countries as well as non G20 countries.

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

56. With reference to International Union for Conservation of Nature (IUCN), consider the following statements:

1. IUCN World Conservation Congress takes place every four years.
2. The IUCN Council is the principal governing body of IUCN.
3. Commission on Education and Communication is one of the six IUCN Commissions.

Which of the statements given above are correct?

(a) 1 and 3 only
(b) 2 and 3 only
(c) 1 and 2 only
(d) 1, 2 and 3

57. The 'Honolulu Strategy', sometimes seen in news is related to

(a) Framework to reduce the ecological, human health and economic impacts of marine debris worldwide
(b) Global collaborative effort to substantially reduce disaster risk
(c) Multilateral agreement to protect the Earth's Ozone layer by phasing out ozone depleting substances
(d) Strategy to effectively deal with forest fires

Join Telegram- https://t.me/upsc_success_time1

58. With reference to the banning of Persistent Organic Pollutants (POPs) in India, consider the following statements:

1. The POPs mentioned in the Stockholm Convention are banned under the provisions of the Air (Prevention and Control of Pollution) Act, 1981.
2. The Cabinet has delegated its powers to ratify chemicals under the Stockholm Convention to Union Ministers of External Affairs (MEA) and Environment, Forest and Climate Change (MEFCC).
3. The ratification process would enable India to access Global Environment Facility (GEF) financial resources in updating the National Implementation Plan (NIP).

Which of the statements given above are correct?

(a) 1 and 2 only
(b) 1 and 3 only
(c) 2 and 3 only
(d) 1, 2 and 3

59. Consider the following statements with respect to the Coalition for Disaster Resilient Infrastructure (CDRI):

1. It was launched in 2015 as a part of the Sendai Framework for Disaster Risk Reduction.
2. Private organisations and Multilateral development banks can become parties to the coalition.
3. United Nations provides secretarial assistance to the CDRI.

Which of the statements given above is/are ***not*** correct?

(a) 1 only
(b) 2 only
(c) 1 and 3 only
(d) 2 and 3 only

60. In the context of multilateral environmental agreements, the 'Prior Informed Consent (PIC) procedure is related to:

(a) Convention on the International Trade in Endangered Species of Wild Flora and Fauna (CITES)
(b) Conservation of Migratory Species
(c) Convention on Biological Diversity (CBD)
(d) Rotterdam Convention

61. With reference to noise pollution in India, consider the following statements:

1. Noise standards for automobiles are prescribed under the Environment (Protection) Rules, 1986.
2. State Governments are responsible for categorizing the areas into industrial, commercial, residential, and silence zones for the purpose of implementation of noise standards.

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

62. Consider the following statements regarding Ocean Acidification:

1. Ocean acidification increases the amount of carbonate in oceans and suffocates corals.
2. Animals like Starfish, Sea butterflies, and Mussells are benefited from ocean acidification.
3. Currently the pH of the world's oceans is slightly less than 7.

Which of the statements given above is/are ***not*** correct?

(a) 1 only
(b) 2 and 3 only
(c) 1 and 2 only
(d) 1, 2 and 3

Join Telegram- https://t.me/upsc_success_time1

63. Consider the following statements with respect to Pradhan Mantri Awaas Yojana-Gramin (PMAY-G):

1. It is implemented by the Ministry of Panchayati Raj.
2. The beneficiaries are identified under Socio Economic Caste Census (SECC) 2011.
3. The verification of the beneficiaries will be done by Gram Sabha.

Which of the statements given above is/are correct?

(a) 1 and 2 only
(b) 2 only
(c) 1 and 3 only
(d) 2 and 3 only

64. Consider the following statements regarding ozone pollution in India:

1. Ground-level ozone is formed by the chemical reactions between oxides of nitrogen (NOx) and volatile organic compounds (VOC).
2. Ozone can reduce the yields of cereal crops like wheat.
3. Ozone pollution is measured through National Air Quality Index.

Which of the statements given above is/are correct?

(a) 1 only
(b) 1 and 3 only
(c) 2 and 3 only
(d) 1, 2 and 3

65. Which of the following is/are the instruments related to carbon credit markets?

1. Certified Emission Reduction (CER)
2. Emission Reduction Unit (ERU)
3. Verified Emission Reduction (VER)

Select the correct answer using the code given below.

(a) 1 and 2 only
(b) 2 and 3 only
(c) 3 only
(d) 1, 2 and 3

66. Consider the following statements with reference to the Great Green Wall (GGW) Programme:

1. GGW Programme spans between the Sahel region from Senegal in the West to Djibouti in the East of Africa.
2. The GGW programme was launched by United Nations Environment Programme (UNEP).

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

67. Which of the following methods can be potentially adopted as a part of geo-Engineering techniques to avoid Global Warming?

1. Shooting of mirrors into space
2. Firing silver iodide into clouds to produce rain
3. Seeding the sea with iron particles
4. Injection of sulphur particles in the sky

Select the correct answer from the code given below.

(a) 2, 3 and 4 only
(b) 1 and 3 only
(c) 1, 2, 3 and 4
(d) 2 and 4 only

68. With reference to Rotterdam Convention, consider the following statements:

1. It is a legally binding multilateral treaty that seeks to promote shared responsibilities in relation to the importation of hazardous chemicals.
2. In India, the Department of Chemicals and Petrochemicals is the Designated National Authority for pesticides.

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

Join Telegram- https://t.me/upsc_success_time1

69. The Environmental Impact Assessment compares the expected economic benefits of a project to certain environmental components of an area. Which of the following components of the environment are taken into consideration in an Environment Impact Assessment?

1. Levels of noise present and predicted
2. Existing ground and surface water resources
3. Impact on historical monuments
4. Wind speed, direction, and humidity.

Select the correct answer from the code given below.

(a) 1, 2 and 4 only
(b) 1 and 3 only
(c) 1, 2, 3 and 4
(d) 2 and 4 only

70. Arrange the following states in the descending order of their wind power installed capacity:

1. Karnataka
2. Tamil Nadu
3. Gujarat
4. Maharashtra

Select the correct answer using the code given below.

(a) 2-3-1-4
(b) 3-2-4-1
(c) 2-3-4-1
(d) 1-2-3-4

71. With reference to the Environment Impact Assessment in India, consider the following statements:

1. The Environment Impact Assessment is statutorily backed up by the Environment Protection Act, 1986.
2. A proponent of a project is required to submit an environment compliance report once every two years to the concerned state authorities.
3. The number of people participating in the public hearing of an Environment Impact Assessment can not be more than hundred.

Which of the statements given above is/are correct?

(a) 1 and 2 only
(b) 1 only
(c) 1, 2 and 3
(d) 2 and 3 only

72. With reference to the Ramsar Convention on Wetlands, Consider the following statements:

1. The convention restricts itself to static water bodies to be considered as a Wetland.
2. It is mandatory for all the parties to the Ramsar Convention to include at least one site in the list of Wetlands of International Importance.
3. UNESCO is recognized as one of the International Organization Partner of the Ramsar Convention.

Which of the statements given above is/are correct?

(a) 2 only
(b) 2 and 3 only
(c) 1 and 3 only
(d) 1 only

Join Telegram- https://t.me/upsc_success_time1

73. Consider the following statements about Perform Achieve and Trade (PAT) scheme:

1. It is a flagship program of the Bureau of Energy Efficiency (BEE) under the National Mission for Enhanced Energy Efficiency (NMEEE).
2. It is being implemented under the National Mission for Enhanced Energy Efficiency (NMEEE).

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

74. Gothenburg Protocol was established to address air pollutants. In this context, which of the following air pollutants are covered under the Protocol?

1. Sulphur dioxide
2. Nitrogen oxide
3. Particulate matter
4. Black carbon
5. Volatile organic compounds

Select the correct answer using the code given below.

(a) 1, 2 and 5 only
(b) 3 and 4 only
(c) 3, 4 and 4 only
(d) 1, 2, 3, 4 and 5

75. Consider the following pairs:

Convention/ Agreement		***Deals with***
1. Basel Convention	:	Control of Transboundary movements of Hazardous waste
2. Stockholm Convention	:	Persistent Organic Pollutants
3. Minamata convention	:	Anthropogenic release of mercury

Which of the pairs given above is/are correctly matched?

(a) 1 and 2 only
(b) 1, 2 and 3
(c) 3 only
(d) 2 and 3 only

76. Consider the following statements regarding the Coastal Regulation Zones (CRZs):

1. CRZs are declared by the Ministry of Environment, Forest and Climate Change.
2. The CRZs rules include only the inter-tidal zone and land part of the coastal area.

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

77. Consider the following statements about the Munda Rebellion:

1. The rebellion was the result of unfair land grabbing practices by colonial and local authorities.
2. The leader of the rebellion, Birsa Munda, started his own religion by taking elements from Vaishnavism, Christianity and Mundari religion.

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

VISION IAS

78. Which of the following correctly describes 'Carbon Intensity Indicator'?

(a) Amount of carbon emissions by a power plant per unit of energy produced.
(b) Amount of carbon emissions generated by a healthy human being during his/her lifetime.
(c) Amount of carbon emissions generated by a Ship in doing one unit of transport work.
(d) Potential loss of carbon sequestration due to rapid melting of glacial sheets.

79. Consider the following statements about Methanol:

1. It has a much higher energy efficiency than petrol and diesel.
2. It burns efficiently in all internal combustion engines.
3. It does not produce any particulate matter on burning.

Which of the statements given above is/are correct?

(a) 1 only
(b) 1 and 3 only
(c) 2 and 3 only
(d) 1, 2 and 3

80. Which of the following Acts can be used for internet shutdowns?

1. Code of Criminal Procedure (CrPC)
2. Indian Telegraph Act, 1885
3. IT (Amendment) Act, 2008
4. The Temporary Suspension of Telecom Services (Public Emergency or Public Safety) Rules

Select the correct answer using the code given below.

(a) 1, 2 and 3 only
(b) 2 and 4 only
(c) 3 and 4 only
(d) 1, 2 and 4 only

81. Consider the following statements about the Zero Liquid Discharge approach:

1. It is used to prevent the leaching of metals during extraction.
2. It works on the basic principle of reverse osmosis.
3. Wastewater is converted into solids for disposal.

Which of the statements given above is/are correct?

(a) 1 and 3 only
(b) 2 only
(c) 2 and 3 only
(d) 1, 2 and 3

82. As per National policy on biofuels, which of the following raw materials can be used for ethanol production?

1. Sugar Beet
2. Sweet Sorghum
3. Cassava
4. Barley seeds
5. Broken rice
6. Chickpea

Select the correct answer using the code given below.

(a) 1, 2, 3 and 5 only
(b) 2, 4, and 6 only
(c) 1, 3, 4 and 6 only
(d) 1, 2, 3, 4, 5 and 6

83. Which among the following are the components of Green Crackers?

1. Lithium
2. Barium
3. Aluminium
4. Thermite

Select the correct answer using the code given below.

(a) 1 and 2 only
(b) 1, 2 and 3 only
(c) 3 and 4 only
(d) 1, 3 and 4 only

Join Telegram- https://t.me/upsc_success_time1

84. With reference to stubble burning, consider the following statements:

1. The oxides of sulfur are released during crop residue burning.
2. The heat from burning paddy straw kills the bacterial and fungal populations critical for fertile soil.
3. Burning crop residue is a crime both under the Indian Penal Code (IPC) and under the Air Pollution Control Act of 1981.

Which of the statements given above are correct?

(a) 1 and 2 only
(b) 2 and 3 only
(c) 1 and 3 only
(d) 1, 2 and 3

85. Sustainable Alternative Towards Affordable Transportation (SATAT) Initiative is related to:

(a) Fuel Cells
(b) Compressed Biogas
(c) Biodiesel
(d) Hybrid and Electronic Vehicles

86. With reference to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), consider the following statements:

1. It is the only global treaty that ensures the trade in plants and animals does not threaten their survival in the wild.
2. CITES is legally binding on the parties and it takes the place of national laws.
3. CITES is administered through the United Nations Environment Programme (UNEP).

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 and 3 only
(c) 1 and 3 only
(d) 1, 2 and 3

87. Which of the following are the major effects of ammonia pollution?

1. Eutrophication and Acidification effects on semi-natural ecosystems
2. Dead zones with dangerously low oxygen levels in the water bodies
3. Formation of haze like conditions in the atmosphere

Select the correct answer using the code given below.

(a) 1 and 2 only
(b) 2 and 3 only
(c) 1 and 3 only
(d) 1, 2 and 3

88. Consider the following statements with reference to TRAFFIC, the Wildlife Trade Monitoring Network:

1. It was established by International Union for Conservation of Nature (IUCN) and United Nations.
2. It is currently now an independent non-profit organization.

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

89. Consider the following statements regarding the Convention on Conservation of Migratory Species (CMS):

1. CMS is the only global intergovernmental organisation established exclusively for the conservation and management of migratory species.
2. It is an environmental treaty under the aegis of the United Nations Environment Programme.

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

Join Telegram- https://t.me/upsc_success_time1

90. GN Bajpai Committee, sometimes seen in the news, is related to

(a) Insolvency and Bankruptcy code in India
(b) National Water Policy of India
(c) Use of electric vehicles in India
(d) Digitization of land records in India

91. With reference to the Energy Conservation Building Code of India, consider the following statements:

1. The Energy Conservation Building Code has been formulated by the Ministry of New and Renewable Energy.
2. The code is applicable to both government and private buildings.
3. The code addresses water efficiency along with the energy efficiency of the buildings.

Which of the statements given above is/are correct?

(a) 1 and 3 only
(b) 2 and 3 only
(c) 2 only
(d) 1 and 2 only

92. In the context of the National Mission on Energy Efficiency, consider the following statements:

1. It is an initiative undertaken by Energy Efficiency Services Limited under the aegis of the National Action Plan for Climate Change.
2. Framework for Energy Efficient Economic Development (FEEED) is a part of the mission.

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

93. Which of the following statements with respect to Shanghai Cooperation Organization (SCO) are correct?

1. It originated from Shanghai five grouping of 1996.
2. Afghanistan is the latest country to become the permanent member of the grouping.
3. The objective of SCO is to fight terrorism, separatism and extremism, bolster trade and economic growth, and advance people-to-people ties.

Select the correct answer using the code given below.

(a) 1 and 2 only
(b) 2 and 3 only
(c) 1 and 3 only
(d) 1, 2 and 3

94. Consider the following statements about e-Green Watch:

1. It is an e-governance portal for the effective online monitoring and evaluation of works in forestry sector undertaken by State Compensatory Afforestation Fund Management & Planning Authority (CAMPA)
2. It is being implemented by the states of India in consultation with Forest Survey of India.

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

Join Telegram- https://t.me/upsc_success_time1

95. Arrange the following radioactive contamination accidents in the chronological order:

1. Kyshtym Disaster
2. Chernobyl Nuclear Disaster
3. Fukushima Daiichi Nuclear Disaster
4. Three Mile Island Accident

Select the correct answer using the code given below.

(a) 1-3-4-2
(b) 4-1-3-2
(c) 1-4-2-3
(d) 4-2-1-3

96. Global e-waste Statistics Partnership (GESP) is created to improve and collect worldwide e-waste statistics in an internationally standardised way. In this context, which of the following organisations are partners to Global e-waste Statistics Partnership (GESP)?

1. International Telecommunication Union (ITU)
2. United Nations University (UNU)
3. United Nations Industrial Development Organisation (UNIDO)
4. International Solid Waste Association (ISWA)

Select the correct answer using the code given below.

(a) 1 and 2 only
(b) 3 and 4 only
(c) 1, 2 and 4 only
(d) 2, 3 and 4 only

97. Consider the following statements regarding the Central Bureau of Investigation (CBI) and Enforcement Directorate:

1. Both CBI and ED are formed under the Delhi Special Police Establishment Act, 1946.
2. The chiefs of both the agencies have a fixed two-year tenure with three annual extensions.

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

98. Which of the following are the criteria used by UN General Assembly for changing the status of a country from least developing country to developing?

1. Gross Domestic Product (GDP)
2. Gross National Income (GNI) per capita
3. Human Assets Index
4. Economic Vulnerability Index

Select the correct answer using the code given below.

(a) 1, 2 and 3 only
(b) 2, 3 and 4 only
(c) 1 and 4 only
(d) 1, 2, 3 and 4

99. Consider the following events:

1. Coming into force of Cartagena Protocol on Biosafety
2. Passing of India's Biological Diversity Act
3. Coming into force of Nagoya Protocol
4. Adoption of Aichi Targets

Arrange the above events in the correct chronological order of their occurrence.

(a) 1-2- 3-4
(b) 2-1-4-3
(c) 2-1-3-4
(d) 1-2-4-3

Join Telegram- https://t.me/upsc_success_time1

100. Arrange the following in decreasing order of the greenhouse gas emissions in the Agriculture sector:

1. Rice
2. Cereals
3. Livestock Product
4. Pulses

Select the correct answer using the code given below.

(a) 1-3-2-4

(b) 3-1-4-2

(c) 1-3-4-2

(d) 3-1-2-4

VISION IAS

Copyright © by Vision IAS
All rights are reserved. No part of this document may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, without prior permission of Vision IAS.

Join Telegram- https://t.me/upsc_success_time1

ANSWERS & EXPLANATIONS
GENERAL STUDIES (P) TEST – 3488 (2022)

Q 1.C

- In July 2005, at the initiative of the United States, G-8 Leaders recognized the devastating effects of illegal logging on wildlife and committed to helping countries enforce laws to combat wildlife trafficking. **The United States Government launched a global Coalition Against Wildlife Trafficking (CAWT) to focus political and public attention on the issue and facilitate action for effective wildlife law enforcement and regional cooperation.**
- **The Coalition Against Wildlife Trafficking (CAWT) aims to focus public and political attention and resources on ending the illegal trade in wildlife and wildlife products.** CAWT is a unique voluntary public-private coalition of like-minded governments and organizations sharing a common purpose. **Hence, statement 1 is correct.**
- Seven major U.S.-based environmental and business groups with global interests and programs have joined the Coalition: Conservation International, Save the Tiger Fund, the Smithsonian Institution, Traffic International, WildAid, Wildlife Conservation Society, and the American Forest & Paper Association. Membership of CAWT is open to Governments, NGOs and corporations committed to combating wildlife trafficking.
- The Coalition complements and reinforces existing national, regional and international efforts, including the work of the Convention on International Trade in Endangered Species, which monitors and regulates international trade in endangered and threatened species and their derivatives. The CAWT organisation is not directly involved in any enforcement activities.
- **India has become a member of the US-led Coalition Against Wildlife Trafficking (CAWT) in 2006**. India and United States have been collaborating in the area of wildlife conservation. India has joined the CAWT in coherence with its national legislation as well as the International Conventions to which it is a party. **Hence, statement 2 is correct.**

Q 2.C

- **Best Tourism Villages (BTV)** is a global initiative launched by United Nations World Tourism Organization (UNWTO) to highlight those villages where tourism preserves cultures and traditions, celebrates diversity, provides opportunities and safeguards biodiversity. Hence, statement 1 is correct.
- The Ministry of Tourism recommended three villages for the UNWTO Best Tourism Village entry from India. These were **Kongthong in Meghalaya, Ladhpura Khas in Madhya Pradesh, and Pochampally in Telangana. Hence, statement 1 is correct.**
- Recently, **Telangana's Pochampally village** was selected as one of the best tourism villages by the United Nations World Tourism Organization (UNWTO). **Hence, statement 2 is correct.**

Q 3.D

- **In partnership with the United Nations Environment Programme, the Ocean Agency has launched Glowing Glowing Gone, a creative awareness campaign that draws attention to coral fluorescence due to climate change.**
- Coral fluorescence, or "glowing" coral, is a last line of defense before coral dies and bleaches. Through Glowing Glowing Gone, UNEP hopes to garner public support to inspire policy and funding to conserve coral reefs and save an ecosystem on which our entire planet depends.
- **Hence, option (d) is the correct answer.**

Join Telegram- https://t.me/upsc_success_time1

Q 4.C

- **The Vienna Convention is the first international agreement dedicated to the protection of the ozone layer.** The objectives of the Convention are for Parties to promote cooperation by means of systematic observations, research, and information exchange on the effects of human activities on the ozone layer and to adopt legislative or administrative measures against activities likely to have adverse effects on the ozone layer. **Hence statement 1 is correct**
- The **Montreal Protocol sits under the Vienna Convention for the Protection of the Ozone Layer (the Vienna Convention).** The Montreal Protocol on Substances that Deplete the Ozone Layer (the Montreal Protocol) is an international agreement made in 1987. It was designed to stop the production and import of ozone-depleting substances and reduce their concentration in the atmosphere to help protect the earth's ozone layer.
- The Montreal Protocol is widely considered the most successful environment protection agreement. It sets out a mandatory timetable for the phase-out of ozone-depleting substances. **The Montreal Protocol sets binding progressive phase-out obligations for developed and developing countries for all the major ozone-depleting substances, including chlorofluorocarbons (CFCs),** halons, and less damaging transitional chemicals such as hydrochlorofluorocarbons (HCFCs). The Montreal Protocol targets 96 ozone-depleting chemicals in thousands of applications across more than 240 industrial sectors. **Hence statement 2 is correct**

Q 5.D

- While many different types of trash enter the ocean, plastics make up the majority of marine debris for two reasons.
- **First,** plastic's durability, low cost, and malleability mean that it's being used in more and more consumer and industrial products. **Second**, plastic goods do not biodegrade but instead, break down into smaller pieces.
- In the ocean, the sun breaks down these plastics into tinier and tinier pieces, a process known as photodegradation. **Most of this debris comes from plastic bags, bottle caps, plastic water bottles, and Styrofoam cups.**
- **Marine debris can be very harmful to marine life in the gyre**. For instance, loggerhead sea turtles often mistake plastic bags for jellies, their favourite food. Albatrosses mistake plastic resin pellets for fish eggs and feed them to chicks, which die of starvation or ruptured organs.
- **Seals and other marine mammals are especially at risk. They can get entangled in abandoned plastic fishing nets, which are being discarded largely due to inclement weather and illegal fishing. Seals and other mammals often drown in these forgotten nets—a phenomenon known as "ghost fishing." Hence option (d) is the correct answer.**
- **Other fishing types --Bottom fishing** is angling with heavy weight at the bottom of water. It can be done from boats and from the land and its aim is catching the fish that lives at the bottom**.-Kite fishing** is using kites to carry line and fishhook to the places that are not easily reachable. It was invented in China and it is still used on New Guinea and other Pacific Islands.- **Fly fishing** uses artificial flies as lures with specially constructed fly rods and fly lines. Artificial flies are usually hand made in variety of shapes.

Q 6.A

- **Recently, Ministry of Panchayati Raj has issued a declaration that aims at recognizing Citizen Centric Services as the core of the governance. 16 states have signed the Mysuru Declaration and resolved to roll out the Common Minimum Service delivery by panchayats across the country from April 1, 2022.**
- **Mysuru Declaration:**
  - Recognize the efforts to promote inclusive and accountable Local Self Governments in delivery of services.
  - Timely and quality delivery of services.
  - Uphold the value of openness in engagement with citizens.
- **Hence option (a) is the correct answer.**

Q 7.B

- Recently, **United Nations (UN)** has released an impact report of the Spotlight Initiative which highlighted the sharp increase in the cases of violence against women, making it a shadow pandemic, amidst the COVID-19 pandemic.
- **Spotlight initiative is the world's largest targeted effort to end all forms of violence against women and girls.**
- **Hence, option (b) is the correct answer.**

Join Telegram- https://t.me/upsc_success_time1

Q 8.D

- The **Greenhouse Gas Protocol** (GHG Protocol) is the most widely used international accounting tool for government and business leaders to understand, quantify, and manage greenhouse gas emissions.
- The GHG Protocol is a partnership between the World Resources Institute (WRI) and the World Business Council for Sustainable Development (WBCSD).
- It works with businesses, governments, and environmental groups around the world to build a new generation of credible and effective programs for tackling climate change.
- It provides the accounting framework for nearly every GHG standard and program in the world - from the International Standards Organization to The Climate Registry - as well as hundreds of GHG inventories prepared by individual companies
- In the context of corporate sector, the GHG Protocol classifies a company's GHG emissions into three 'scopes':
  - **Scope 1** emissions are direct emissions from owned or controlled sources.
  - **Scope 2** emissions are indirect emissions from the generation of purchased energy.
  - **Scope 3** emissions are all indirect emissions (not included in scope 2) that occur in the value chain of the reporting company, including both upstream and downstream emissions.
- **Hence, all pairs are correctly matched.**

Q 9.C

- CITES (the Convention on International Trade in Endangered Species of Wild Fauna and Flora) is an international agreement between governments. Its aim is to ensure that international trade in specimens of wild animals and plants does not threaten the survival of the species.
  - CITES was drafted as a result of a resolution adopted in 1963 at a meeting of members of IUCN (The World Conservation Union). The text of the Convention was finally agreed at a meeting of representatives of 80 countries in Washington, D.C., United States of America, on 3 March 1973, and on **1 July 1975 CITES entered in force**.
- The Ramsar Convention was adopted in the Iranian city of Ramsar in 1971 and **came into force in December, 1975**. Since then, almost 90% of UN member states, from all the world's geographic regions, have acceded to become "Contracting Parties".
  - The Convention on Wetlands is the intergovernmental treaty that provides the framework for the conservation and wise use of wetlands and their resources.
- Convention of Migratory Species of Wild Animals is also known as the Bonn Convention. It is the only convention that deals with taking or harvesting of species from the wild. It currently protects 173 migratory species from across the globe.
  - The Convention **came into force on November 1, 1983**. The Secretariat that administers the Convention was established in 1984.
- Desertification, along with climate change and the loss of biodiversity, were identified as the greatest challenges to sustainable development during the 1992 Rio Earth Summit.
  - United Nations Convention to Combat Desertification (UNCCD) is the **sole legally binding** international agreement linking environment and development to sustainable land management. management. **It entered into force on 26 December 1996,** 90 days after the 50th ratification was received.
  - The Convention addresses specifically the arid, semi-arid and dry sub-humid areas, known as the drylands, where some of the most vulnerable ecosystems and peoples can be found.
- **Hence option (c) is the correct answer.**

Q 10.C

- The National Green Tribunal Act, 2010 was enacted to create a special tribunal, the National Green Tribunal, to handle the expeditious disposal of the cases pertaining to environmental issues.
- It draws inspiration from the constitutional provision of Article 21 for the Protection of life and personal liberty, which assures the citizens of India the right to a healthy environment.
- The Tribunal's dedicated jurisdiction in environmental matters provide speedy environmental justice and help reduce the burden of litigation in the higher courts.
- It is not be bound by the procedure laid down under the Code of Civil Procedure, 1908, but shall be guided by principles of natural justice.
- The Tribunal shall have the jurisdiction over all civil cases where a substantial question relating to environment (including enforcement of any legal right relating to environment), is involved and such question arises out of the implementation of the enactments specified in Schedule I as follows:
  - The Water (Prevention and Control of Pollution) Act, 1974;

Join Telegram- https://t.me/upsc_success_time1

- The Water (Prevention and Control of Pollution) Cess Act, 1977;
- The Forest (Conservation) Act, 1980;
- The Air (Prevention and Control of Pollution) Act, 1981;
- The Environment (Protection) Act, 1986;
- **The Public Liability Insurance Act, 1991;**
- **The Biological Diversity Act, 2002.**

- **Hence, option (c) is the correct answer.**

Q 11.B

- In India, Forest land can be diverted for non-forest purposes such as construction of dams, mining and other developmental activities only if the government permits.
- Since this diversion of forest land results in loss of biodiversity which in turn affects wildlife as well as geographical parameters such as climate and terrain, compensatory afforestation is also mandated under the Forest (Conservation) Act, 1980 that an equivalent area of non-forest land has to be taken up for compensatory afforestation. **Hence, option (b) is the correct answer.**
- In addition to this, funds for raising the forest are also to be imposed on whomsoever is undertaking the diversion. The land chosen for afforestation, if viable, must be in close proximity of reserved or protected forest for ease of management by forest department.
- Compensatory Afforestation Fund Act seeks to provide an appropriate institutional mechanism, both at the Centre and in each State and Union Territory, to ensure expeditious utilization in efficient and transparent manner of amounts released in lieu of forest land diverted for non-forest purpose which would mitigate impact of diversion of such forest land.

Q 12.B

- The Government of India launched the E-Amrit web portal on electric vehicles at the recently convened United Nations Climate Change COP 26, held at Glasgow. **E-Amrit is a one-stop destination for all information on electric vehicles**—busting myths around the adoption of EVs, their purchase, investment opportunities, policies, subsidies, etc. **Hence statement 1 is not correct**
- E-Amrit intends to complement initiatives of the government on raising awareness on EVs and sensitizing consumers on the benefits of switching to electric vehicles. The portal has been developed and hosted by NITI Aayog under a **collaborative knowledge exchange program with the UK government and as part of the UK–India Joint Roadmap 2030**, signed by the Prime Ministers of the two countries. **Hence statement 2 is correct**

Q 13.C

- United Nations Forum on Forests (UNFF) was established in 2000 **as a subsidiary body to the United Nations Economic and Social Council (UNECOSOC)** to facilitate the implementation of the forest principles laid down at the United Nations Conference on Environment and Development. **Hence, statement 2 is not correct.**
- The aim of the UN Forum on Forests as a high-level UN body is focusing on the issues of international forest policy is **mandated to promote the management, conservation and sustainable development of all types of forests** and to strengthen long-term political commitment to this end. **Hence, statement 1 is correct.**
- **The Forum is headquartered in New York and has universal and equal membership composed of all member states of the United Nations and its specialized agencies. Hence, statement 3 is correct.**
- UNFF adopted the United Nations Forest Instrument, which provides countries with a framework for promoting sustainable forest management. The Instrument articulates a series of agreed policies and measures at the international and national levels to strengthen forest governance, technical and institutional capacity, policy and legal frameworks, forest sector investment and stakeholder participation.

Q 14.A

- **The NOS-DCP (National Oil Spill Disaster Contingency Plan)** was originally promulgated in 1996 and subsequently updated to include additional information, the latest update being in 2014.
- **The Indian Coast Guard is the designated national authority for oil spill response in Indian waters under the Plan. Hence statement 2 is not correct**
- **Objectives of the plan:**-To establish an effective system for detection and reporting of spills;-To establish adequate measures for preparedness for oil and chemical pollution;-To facilitate a rapid and effective response to oil pollution;-To establish adequate measures for the crew, responders, and public health and safety, and protection of the marine environment;-To establish appropriate response technique to prevent,

Join Telegram- https://t.me/upsc_success_time1

control and combat oil pollution and dispose-off the recovered material in an environmentally sound manner;-To establish record-keeping procedures to facilitate recovery of costs;-To maintain the evidence for the purpose of identifying the polluter and taking suitable administrative, civil or criminal action against the polluter.

- The plan assigned task-based responsibilities to government departments and agencies. **The government of every coastal State should constitute a State-level Oil Spill Crisis Management Group. Hence statement 1 is correct.**
- It also mandated the constitution of district and local level crisis management groups in order to protect the livelihood of fishermen and marine resources.

Q 15.D

- **Recently, Pakistan has brought a bill to give effect to International Court of Justice (ICJ)'s 2019 judgement, which will help Indian national Kulbushan Jadhav appeal against death sentence given to him by a military court.**
- The International Court of Justice, also known as the World Court, is the main judicial organ of the UN. It was established in June 1945 by the Charter of the United Nations and began work in April 1946. **Hence, statement 1 is correct.**
- The International Court of Justice is **composed of 15 judges elected to nine-year terms of office** by the United Nations General Assembly and the Security Council. The Court may not include more than one national of the same State. In order to ensure a measure of continuity, one third of the Court is elected every three years. **Judges are eligible for re-election. Hence, statement 2 is correct.**
- The Court's role is to settle, in accordance with international law, legal disputes submitted to it by States and to give advisory opinions on legal questions referred to it by authorized United Nations organs and specialized agencies. The Court decides disputes between countries, based on the voluntary participation of the States concerned. If a State agrees to participate in a proceeding, it is obligated to comply with the Court's decision. **Hence, statement 3 is correct.**

Q 16.A

- **The Mingbulak (or Fergana Valley) Oil Spill (1992)**
- **It was the largest land-based oil spill in history, and Asia's worst oil spill occurred in Uzbekistan on March 2, 1992.**
- A blowout at a well spewed oil into the valley near the city of Fergana. **The oil caught fire and burned for two months** before the good pressure subsided. Of the estimated **88 million gallons that were released**, more than 88 million gallons were protected from a fire behind berms and dikes.
- The oil quickly flowed out of the well and into the valley. The oil from the well had been leaking for 8 months, but dikes were used to hold it back. **Eventually, the dikes failed and oil was sent into the Russian Arctic.**
- The oil somehow stopped flowing on its own. The oil field was abandoned soon after. **Hence option (a) is the correct answer**
- **Other Incidents-**
- **Exxon Valdez oil spill**, a massive oil spill that occurred on March 24, 1989, in Prince William Sound, an inlet in the **Gulf of Alaska, Alaska, U.S.**
- The incident happened after an Exxon Corporation tanker, the Exxon Valdez, ran aground on Bligh Reef during a voyage from Valdez, Alaska, to California. Delayed efforts to contain the spill and naturally strong winds and waves dispersed nearly 11,000,000 gallons (41,640 kilolitres) of North Slope crude oil across the sound.
- The spill eventually polluted 1,300 miles (2,092 kilometers) of indented shoreline, as well as adjacent waters, as far south as the southern end of Shelikof Strait between Kodiak Island and the Alaska Peninsula.
- The Japanese cargo ship **MV Wakashio** ran aground on a **coral reef off the coast of Mauritius**, leaking up to 1,000 tonnes of heavy oil into a pristine lagoon.
- The oil spill has been described as one of the worst ecological disasters ever to hit the western Indian Ocean.
- The MV Wakashio oil spill, a Man-made Ecological and Economical Disaster, occurred offshore of **Pointe d'Esny, south of Mauritius**, close to the Marine Protected Area designated as the Second Wetland of International Importance under the 'Ramsar Convention' which is renowned for its remarkable coral garden and is home to more than 1,000-year-old brain coral (Lobophyllia sp.), **the largest brain coral in the Indian Ocean.**

Join Telegram- https://t.me/upsc_success_time1

- **The Amoco Cadiz,** a very large crude carrier (VLCC) stocked with nearly 69 million gallons of light crude oil, ran aground on shallow rocks off the coast of Brittany, France, on the morning of **March 16, 1978.**
- The ship was navigating the rough seas of the English Channel when its rudder and hydraulic system were damaged by a large wave.

Q 17.C

- **Tropospheric pollution occurs due to the presence of undesirable solid or gaseous particles in the air.** The following are the major gaseous and particulate pollutants present in the troposphere:
  - **Gaseous air pollutants**: These are oxides of sulphur, nitrogen and carbon, hydrogen sulphide, hydrocarbons, ozone and other oxidants.
  - **Particulate pollutants:** These are dust, mist, fumes, smoke, smog etc.
- **Oxides of Sulphur:** Oxides of sulphur are produced when sulphur-containing fossil fuel is burnt. The most common species, sulphur dioxide, is a gas that is poisonous to both animals and plants.
- It has been reported that even a low concentration of sulphur dioxide causes respiratory diseases e.g., asthma, bronchitis, emphysema in human beings.
- **Uncatalysed oxidation of sulphur dioxide is slow. However, the presence of particulate matter in polluted air catalyses the oxidation of sulphur dioxide to sulphur trioxide. Hence statement 3 is correct.** $2SO_2\ (g) + O_2\ (g) \rightarrow 2SO_3(g)$ The reaction can also be promoted by ozone and hydrogen peroxide. $SO_2\ (g) + O_3\ (g) \rightarrow SO_3(g) + O_2\ (g) SO_2(g) + H_2O_2(l) \rightarrow H_2SO_4(aq)$
- **Oxides of Nitrogen:** Dinitrogen and dioxygen are the main constituents of air. These gases do not react with each other at a normal temperature. At high altitudes when lightning strikes, they combine to form oxides of nitrogen. NO_2 is oxidised to nitrate ion, NO_3^- which is washed into soil, where it serves as a fertilizer.
- Rate of production of NO_2 is faster when nitric oxide reacts with ozone in the stratosphere. $NO\ (g) + O_3\ (g) \rightarrow NO_2\ (g) + O_2\ (g)$ The irritant red haze in the traffic and congested places is due to oxides of nitrogen.
- **Higher concentrations of NO_2 damage the leaves of plants and retard the rate of photosynthesis. Nitrogen dioxide is a lung irritant that can lead to an acute respiratory disease in children. It is toxic to living tissues also. Hence statement 1 is correct.**
- Nitrogen dioxide is also harmful to various textile fibres and metals.
- **Carbon monoxide (CO)** is one of the most serious air pollutants. It is a colourless and odourless gas, highly poisonous to living beings because of its ability to block the delivery of oxygen to the organs and tissues.
- **It is produced as a result of incomplete combustion of carbon. It binds to haemoglobin to form carboxyhaemoglobin, which is about 300 times more stable than the oxygen-haemoglobin complex.**
- In blood, when the concentration of carboxyhaemoglobin reaches about 3–4 per cent, **the oxygen carrying capacity of blood is greatly reduced.** This oxygen deficiency, results into headache, weak eyesight, nervousness and cardiovascular disorder. **Hence statement 2 is not correct.**

Q 18.A

- The **Antarctic Treaty** was signed in Washington on 1 December 1959 by the twelve countries whose scientists had been active in and around Antarctica during the International Geophysical Year (IGY) of 1957-58. **Hence statement 1 is correct.**
- It entered into force in 1961 and has since been acceded to by many other nations. The total number of Parties to the Treaty is now **54**, including **India**.
- These **12 founding countries** are: Argentina, Australia, Belgium, Chile, France, Japan, New Zealand, Norway, South Africa, USSR (now Russia) the UK, and the US. **Hence statement 1 is not correct.**
  - Among the signatories of the Treaty were seven countries - Argentina, Australia, Chile, France, New Zealand, Norway and the United Kingdom - with territorial claims, sometimes overlapping. Other countries do not recognize any claims. The US and Russia maintain a "basis of claim".
- The **Protocol on Environmental Protection to the Antarctic Treaty** was signed in Madrid on October 4, 1991 and entered into force in 1998. It designates Antarctica as a "natural reserve, devoted to peace and science" (Art. 2). **Hence statement 2 is correct.**

Q 19.C

- The biological damage caused by the radiation depends upon the following factors :
  - **the time of exposure**
  - **the intensity of the radiation**

Join Telegram- https://t.me/upsc_success_time1

- **the type of ionizing radiation (i.e. its penetration power)**
- **whether the radiation is emanating from outside or inside the human body.**

- On account of these factors the absorbed (or simply doses dose) designated as D, of the radiation to be the amount of energy deposited into a region of the body divided by the mass of the portion of the body that absorbed the radiation.
- **The MKS unit of absorbed dose is 'gray' (Gy), thus one gray is one joule of energy deposited per kg of mass. A more traditional unit of absorbed doses is radiation absorbed dose (rad). One rad is equivalent to 0.01 Gy.**
- Biological damage caused by a particle depends not only on the total energy deposited but also on the rate of energy loss per unit distance traversed by the particle. For example, alpha particles do much more damage per unit of energy deposited than do electrons (b-particles). This effect is represented by the quality factor Q taken 0 for electron and 20 for alpha particle.
- **The biological impact is specified by the human equivalent dose H, which is the product of the absorbed dose D and the quality factor Q: H = QD. The MKS unit of the human equivalent dose is called the sievert, Sv.**
- **The sievert (symbol Sv) is the SI unit of dose equivalent and is dimensionally equivalent to one joule per kilogram**. The sievert represents the stochastic effects of ionizing radiation as adjusted by a tissue weighting factor to account for differing responses of different human tissues to ionizing radiation and the differing effects of different forms and energies of this radiation. **Hence option (c) is the correct answer.**
- **Dobson Unit -** The Dobson Unit is the most common unit for measuring ozone concentration. One Dobson Unit is the number of molecules of ozone that would be required to create a layer of pure ozone 0.01 millimeters thick at a temperature of 0 degrees Celsius and a pressure of 1 atmosphere (the air pressure at the surface of the Earth).

Q 20.A

- **Recently, Swachh Survekshan 2021 report has been released by Ministry of Housing and Urban Affairs (MoHUA)**. **Hence, statement 1 is correct.**
- It is an annual survey of cleanliness, hygiene and sanitation in cities and towns across India under Swachh Bharat Mission-Urban (SBM-U).
- The first survey, which was undertaken in 2016, covered 73 cities; by 2021, in its sixth edition, the survey was grown to cover 4320 cities and was said to be the largest cleanliness survey in the world.
- MoHUA conducted the sixth edition of the survey to rank all cities under Swachh Bharat Mission-Urban (SBM-U) with Quality Council of India (QCI) as its implementation partner in a bid to scale up the coverage of the ranking exercise and encourage towns and cities to actively implement mission initiatives in a timely and innovative manner.
- Swachh Survekshan is a **pan India annual cleanliness survey** that ranks India's **cities, towns and states** based on sanitation, waste management and overall cleanliness. **Hence, statement 2 is not correct.**

Q 21.A

- Selective catalytic reduction (SCR)-It is currently the most widely applied technology in which Ammonia is used as a reducing agent to convert NOx to nitrogen in the presence of a catalyst in a converter.
- **The catalyst is usually a mixture of titanium dioxide, vanadium pentoxide, and tungsten trioxide. Hence option (a) is the correct answer.** SCR can remove 60–90% of NOx from flue gases.
- The process is very expensive and the associated ammonia injection results in an ammonia slipstream in the exhaust.

Q 22.C

- **Black carbon is not a gas but a particulate — a component of soot emitted by the incomplete combustion of fossil fuels and biomass. Hence statement 1 is not correct.**
- Along with methane, **black carbon is one of the two greenhouse contributors** the global community has targeted for immediate reduction to curb global warming before the Arctic melts.
- It stays in the atmosphere for shorter period of time and descends along with precipitation after some time. **Because of black carbon's short atmospheric life span, decreasing its presence offers an opportunity to mitigate the effects of global warming quickly** — within weeks. **Hence statement 2 is correct.**
- Control of black carbon, according to many scientists — particularly from fossil-fuel sources — could be the fastest method of slowing global warming in the near future

Join Telegram- https://t.me/upsc_success_time1

- Here on Earth, the albedo effect has a significant impact on our climate. correct. The albedo of a surface is the fraction of the incident sunlight that the surface reflects. **The lower the albedo, the more radiation from the Sun that gets absorbed by the planet, and temperatures will rise.** If the albedo is higher, and the Earth is more reflective, more of the radiation is returned to space, and the planet cools.
- Black carbon is generally thought to have both a direct warming effect (by absorbing incoming solar radiation in the atmosphere and converting it to heat radiation) and an indirect warming effect (by reducing the reflectivity (albedo) of snow and ice). **Hence statement 3 is correct.**

Q 23.D

- **Recent context**: Over the past few months, Turkey's Marmara Sea has been facing a new challenge. The Marmara sea that connects the Black Sea to the Aegean Sea has been blanketed with 'sea snot' causing new environmental concerns.
- Sea Snot was first discovered in Turkey in 2007. Also known as ‘marine mucilage’, it is a thick, slimy grey-brown sheet that is formed by dead and living organic material. The sludge forms when algae overloaded with nutrients feast on warm weather. This warm weather is caused due to global warming. **Hence, statement 1 is not correct.**
- **Environmental experts have said that the overproduction of phytoplankton caused by climate change and the uncontrolled dumping of household and industrial waste into the seas has led to the present crisis.**
- The growth of the Sea Snot, which floats upon the surface of the sea like brown phlegm, is posing a severe threat to the marine ecosystem of the country. It has caused mass deaths among the fish population, and also killed other aquatic organisms such as corals and sponges. **Hence, statement 2 is not correct.**
- Ecologists said that the brown mucilage floating in the seas of Turkey is a sign of how the marine ecosystem can be damaged and the effect it can have on the environment as a whole if serious steps are not taken to tackle the twin crisis of pollution and global warming.

Q 24.B

- **Chemical Oxygen Demand (COD) is a test that measures the amount of oxygen required to chemically oxidize the organic material and inorganic nutrients, such as Ammonia or Nitrate, present in water. Hence statement 1 is not correct.**
- The most commonly used oxidant is **potassium dichromate, which is used in combination with boiling sulphuric acid**. It is important to note that the chemical oxidant is not specific to organic or inorganic compounds, hence both these sources of oxygen demand are measured in a COD assay.
- COD is an important water quality parameter and is used in a wide range of applications, including:-to confirming wastewater discharge and the waste treatment procedure meets criteria set by regulators;-to quantify the biodegradable fraction of wastewater effluent - the ratio between BOD and COD;-**COD or BOD measurements are also used as an indicator of the size of a wastewater treatment plant required for a specific location. Hence statement 2 is correct.**
- **Challenges associated with COD monitoring-**
    - Despite the test being entrenched in legislation there are numerous problems and challenges associated with the use of the test:-There is a lag until results are available (transportation to lab + 2h for the test), hence environmental damage can occur before the data is available;-the test is time-consuming and expensive;-the test involves dangerous chemicals that need careful disposal and are potentially harmful to operators;-it fails to recreate natural processes (i.e. the test involves an artificial incubation with a strong oxidizing agent);-it is imprecise and has a high minimum detection limit thus is not applicable to clean/uncontaminated river samples;
    - It is clear that a **move from traditional laboratory testing to in-situ (real-time) monitoring would help to alleviate some of the problems outlined above**. **This is because COD is an ex situ method since the sample is tested in labs.**
    - It would immediately address points I - III and would help to improve the spatial-temporal resolution of monitoring that would be directly beneficial to basin managers, water companies, and legislators alike.

Join Telegram- https://t.me/upsc_success_time1

Water type	Expected COD
Rivers	5 – 50 mg L^{-1}
Treated effluent and polluted rivers	25 – 250 mg L^{-1}
Primary/secondary effluent	250 – 750 mg L^{-1}
Raw municipal sewage	500 – 1200 mg L^{-1}
Contaminated Industrial effluent	1000 – 50000 mg L^{-1}

Table 1 - Typical COD levels found in natural waters and sewage/effluent

Q 25.B

- Arsenic is a natural component of the earth's crust and is widely distributed throughout the environment in the air, water and land. It is highly toxic in its inorganic form.
- People are exposed to elevated levels of inorganic arsenic through drinking contaminated water, using contaminated water in food preparation and irrigation of food crops, industrial processes, eating contaminated food and smoking tobacco.
- Long-term exposure to inorganic arsenic, mainly through drinking water and food, can lead to chronic arsenic poisoning. Skin lesions and skin cancer are the most characteristic effects.
- **Arsenic doesn't have a taste or odor and one can be exposed to it without knowing.**
- **Hence, statement 1 is correct.**
- **Health effects**
  - **The International Agency for Research on Cancer (IARC) has classified arsenic and arsenic compounds as carcinogenic to humans.**
- **Hence, statement 2 is correct**
  - The immediate symptoms of acute arsenic poisoning include vomiting, abdominal pain and diarrhoea. These are followed by numbness and tingling of the extremities, muscle cramping and death, in extreme cases.
  - The first symptoms of long-term exposure to high levels of inorganic arsenic (for example, through drinking water and food) are usually observed in the skin and include pigmentation changes, skin lesions and hard patches on the palms and soles of the feet (hyperkeratosis). These occur after a minimum exposure of approximately five years.
- **As per Central Water Commission (CWC), the most common heavy metal pollutant found in India's rivers is iron.**
- **Hence, statement 3 is not correct.**

Q 26.D

- **Carbon Pricing** is an instrument that **captures the external costs of greenhouse gas (GHG) emissions** - the costs of emissions that the public pays for, such as damage to crops, health care costs from heatwaves and droughts, and loss of property from flooding and sea-level rise - and ties them to their sources through a price, usually in the form of a price on the carbon dioxide (CO2) emitted.
- A price on carbon **helps shift the burden for the damage from GHG emissions back to those who are responsible for it and who can avoid it.** Instead of dictating who should reduce emissions where and how, a carbon price provides an economic signal to emitters, and allows them to decide to either transform their activities and lower their emissions or continue emitting and paying for their emissions. **Hence option (d) is the correct answer.**
- **Other concepts:**
  - **Carbon leakage** refers to the situation that may occur if, for reasons of costs related to climate policies, businesses were to transfer production to other countries with laxer emission constraints. This could lead to an increase in their total emissions
  - **Carbon Tax** - A carbon tax is a fee imposed on businesses and individuals that works as a sort of "pollution tax." The tax is a fee imposed on companies that burn carbon-based fuels, including coal, oil, gasoline, and natural gas.

Join Telegram- https://t.me/upsc_success_time1

- **Carbon Trading is the buying and selling of credits that permit a company or other entity to emit a certain amount of carbon dioxide.** Carbon trade agreements allow for the sale of credits to emit carbon dioxide between nations as part of an international agreement aimed at gradually reducing total emissions.
- **Carbon trading began under the Kyoto Protocol of 1997** (which came into force in 2005). Under this, 'certified emission reductions' or CERs, were issued to entities that put up projects that reduced emissions — such as wind, solar, or energy efficiency.
- It allows nations which are unable to meet their reduction targets to purchase carbon credits. Paris Agreement also allows voluntary trading between countries to meet their NDC goals. If a country reduces more GHG emissions than its target, it can sell the emission reduction to another country as an "internationally traded mitigation outcome".
- **Zero Carbon Law by New Zealand** - The Zero Carbon Act puts in place targets to reduce all greenhouse gases: Carbon dioxide and nitrous oxide have to reduce to net zero by 2050.

Q 27.B

- Geocycle, the global waste management arm of building solutions provider LafargeHolcim, is implementing innovative bubble curtain technology for the first time in India to stop plastic from entering the river Yamuna. **The bubble barrier has been established on the Mantola canal of Agra city which carries 40 percent of its storm and wastewater.**
- **A bubble curtain is a non-invasive solution to stop plastic from entering the oceans. Ships and fish can pass through the air bubbles, but plastics will be stopped. The bubble screen is created by a specially designed air tube which is placed diagonally on the bed of the canal or river. It brings waste to the surface, channels the plastic onto the banks where it can be extracted. Hence, option (b) is the correct answer.**
- The bubble barrier is generated using compressed air passing through tubes that are placed at the bottom of the canal. These tubes are connected with a compressor which is powered by renewable solar energy. Further, aeration in the canal will increase dissolved oxygen levels in the wastewater/stormwater leading to an overall improvement in the water quality.

Q 28.C

- The coastal ecosystems of mangroves, tidal marshes, and seagrass meadows provide numerous benefits and services that are essential for climate change adaptation along coasts globally, including protection from storms and sea-level rise, prevention of shoreline erosion, regulation of coastal water quality, provision of habitat for commercially important fisheries and endangered marine species, and food security for many coastal communities. Additionally**, these ecosystems sequester and store significant amounts of coastal blue carbon from the atmosphere and ocean and hence are now recognized for their role in mitigating climate change.**
- **Coastal blue carbon ecosystems are found along the coasts of every continent except Antarctica.** Mangroves grow in the intertidal zone of tropical and subtropical shores. Countries with the highest areas of mangroves include Indonesia, Australia, Mexico, Brazil, Nigeria, Malaysia, Myanmar, Papua New Guinea, Cuba, India, Bangladesh, and Mozambique.
- The Coastal Blue Carbon Ecosystems are very efficient at sequestering and storing carbon- **each square mile of these systems can remove carbon from the atmosphere and oceans at a rate higher than each square mile of a tropical forest. Hence statement 1 is correct**
- The **Blue Carbon Initiative** is the first integrated program focused on mitigating climate change by conserving, restoring, and promoting sustainable use of coastal marine ecosystems globally. The Initiative currently focuses on mangroves, tidal marshes, and seagrasses. **It is an international collaborative effort of the Conservation International, International Union for Conservation of Nature, and the Intergovernmental Oceanic Commission of the UNESCO. Hence statement 2 is correct**

Q 29.A

- The International Standards for drinking water are given below and they must be followed.
- Fluoride: For drinking purposes, water should be tested for fluoride ion concentration. Its deficiency in drinking water is harmful to man and causes diseases such as tooth decay etc.
- **Soluble fluoride is often added to drinking water to bring its concentration up to 1 ppm or 1 mg dm–3. Hence statement 2 is correct.**
- **The F– ions make the enamel on teeth much harder by converting hydroxyapatite, [3(Ca3(PO4)2.Ca(OH)2], the enamel on the surface of the teeth, into much harder fluorapatite, [3(Ca3(PO4)2.CaF2]. Hence statement 1 is correct.**

Join Telegram- https://t.me/upsc_success_time1

- However, F– ion concentration above 2 ppm causes brown mottling of teeth. At the same time, excess fluoride (over 10 ppm) causes harmful effects to bones and teeth, as reported from some parts of Rajasthan.
- **Nitrate: The maximum limit of nitrate in drinking water is 50 ppm. Excess nitrate in drinking water can cause diseases such as methemoglobinemia ('blue baby' syndrome). Hence statement 3 is not correct.**
- **Lead**: Drinking water gets contaminated with lead when lead pipes are used for the transportation of water. The prescribed upper limit concentration of lead in drinking water is about 50 ppb. Lead can damage kidney, liver, reproductive system etc.
- **Sulphate**: Excessive sulphate (>500 ppm) in drinking water causes the laxative effect, otherwise at moderate levels it is harmless.
- Other metals: The maximum concentration of some common metals recommended in drinking water are given-

Table 14.2 Maximum Prescribed Concentration of Some Metals in Drinking Water.

Metal	Maximum concentration (ppm or mg dm^{-3})
Fe	0.2
Mn	0.05
Al	0.2
Cu	3.0
Zn	5.0
Cd	0.005

Q 30.A

- **Virtual Water (VW) is the water involved in the production and trade of food and non-food commodities and services. It is that "invisible" water that has been consumed throughout the lifecycle of the product or service. Hence option (a) is the correct answer.**
- For ex: On an average, 3000 liters of water is required for producing 1 kg of rice. • Owing to its sizable agricultural exports, India has been losing water thereby putting its water sustainability at risk.
- VW analysis could help India in defining its trade characteristics. **As per estimates, between 2006 and 2016 India exported 26,000 million litres of VW on an average every year.**
- **Significance of the VW analysis-**
- Optimizing domestic water use through imports of water intensive agriculture products.
- Reducing pressure on freshwater resources in water arid states by diversifying the production areas.
- Help in framing evidence-based water policies and in establishing the link between the hydrologicaleconomic-institutional aspects of water scarcity.
- Will provide alternative to mega project such as Interlinking of Rivers to alleviate regional water scarcity.

Q 31.A

- **Recently, Nairobi Declaration was adopted by African ministers and head of delegations on November 19, 2021, which underlined the need to deliver commitments on the Programme Of Action (PoA) for implementing the Sendai Framework in Africa.**
- It was organised by the **United Nations Office for Disaster Risk Reduction (UNDRR)**, in collaboration with the **African Union Commission and the Intergovernmental Authority on Development.**
- **Sendai Framework** is aimed towards "substantial reduction in disaster risk and losses in lives, livelihoods and health and in the economic, physical, social, cultural and environmental assets of persons, businesses, communities and countries".
- Implementation of the Sendai Framework is expected to contribute to UN-mandated Sustainable Development Goals and to achieving Agenda 2063 commitment "The Africa we want".
- Sendai Framework provides for a pathway in guiding countries and communities to substantially reduce the effects of shocks caused by natural and human-induced hazards by 2030 compared to 2005-2015.
- **Hence, option (a) is the correct answer.**

Join Telegram- https://t.me/upsc_success_time1

Q 32.A

- **Current Context:** The 2021 United Nations Climate Change Conference, more commonly referred to as COP26, was the 26th United Nations Climate Change Conference (UNFCCC). It was held at the SEC Centre in Glasgow, Scotland, United Kingdom.
- The conference was the 26th Conference of the Parties (COP) to the United Nations Framework Convention on Climate Change
- **Conference of the Parties (COP)**
  - The COP is the supreme decision-making body of the Convention. **Hence, statement 1 is correct.**
  - All States that are Parties to the Convention are represented at the COP, at which they review the implementation of the Convention and any other legal instruments that the COP adopts and take decisions necessary to promote the effective implementation of the Convention, including institutional and administrative arrangements.
  - A key task for the COP is to review the national communications and emission inventories submitted by Parties. Based on this information, the COP assesses the effects of the measures taken by Parties and the progress made in achieving the ultimate objective of the Convention.
  - The COP meets every year, unless the Parties decide otherwise. The COP meets in Bonn, the seat of the secretariat, unless a Party offers to host the session. The first COP meeting was held in Berlin, Germany in 1995.
  - The **COP Presidency rotates among the five recognized UN regions** - that is, Africa, Asia, Latin America and the Caribbean, Central and Eastern Europe and Western Europe and Others. Also, there is a tendency for the venue of the COP to also shift among these groups. **Hence, statement 2 is not correct.**

Q 33.A

- India's installed renewable power generation capacity has gained pace over the past few years growing at the rate of 17.33% between 2016 and 2020. The sector has become attractive from investors' perspectives as the government is increasing its support. The government is aiming to achieve 227 GW of renewable energy capacity (including 114 GW of solar capacity addition and 67 GW of wind power capacity) by 2022, more than its 175 GW target as per the Paris Agreement. The government plans to establish a renewable energy capacity of 523 GW (including 73 GW from Hydro) by 2030. **Hence statement 3 is not correct.**
- The Indian renewable energy sector is the fourth most attractive renewable energy market in the world. India was ranked fourth in wind power, fifth in solar power, and fourth in renewable power installed capacity, as of 2020. **Hence statement 1 is correct and statement 2 is not correct.**

Q 34.D

- IAP (Indoor Air Pollution) is the degradation of indoor air quality by harmful chemicals and other materials. Indoor air quality is affected by many factors, including the type and running conditions of indoor pollution sources, ventilation conditions, as well as indoor activities.
- According to the Environment Protection Act, 1986, the levels of indoor air pollutants are often 2-5 times higher than outdoor levels. In some cases, these levels can exceed the outdoor levels of the same pollutants 100 times.
- The principal sources of indoor air pollution are Combustion, building material, and bioaerosols. While **RADON, ASBESTOS, pesticides, heavy metals, volatile organic matter, and environmental tobacco smoke are considered major indoor pollutants in developed countries, the combustion products of biomass fuels contribute most to indoor air pollution in developing nations.**
- In India, out of 0.2 billion people using fuel for cooking; 49% use firewood; 8.9% cow dung cake; 1.5% coal, lignite, or charcoal; 2.9% kerosene; 28.6% liquefied petroleum gas (LPG); 0.1% electricity; 0.4% biogas; and 0.5% any other means.
- The incomplete combustion products of biomass fuels include **suspended particulate matter, CARBON MONOXIDE, polyaromatic hydrocarbons, poly organic matter, FORMALDEHYDE, etc.**, which have adverse effects on health.
- The combustion of coal results in the production of oxides of sulfur, arsenic, and fluorine. **Pollutants such as aldehydes, volatile, and semivolatile organic compounds are produced from resins, waxes, polishing materials, cosmetics, and binders.**
- **Lastly; biological pollutants like dust mites, molds, pollen, and infectious agents produced in stagnant water, mattresses, carpets, and humidifiers too pollute indoor air.**
- **Hence option (d) is the correct answer.**

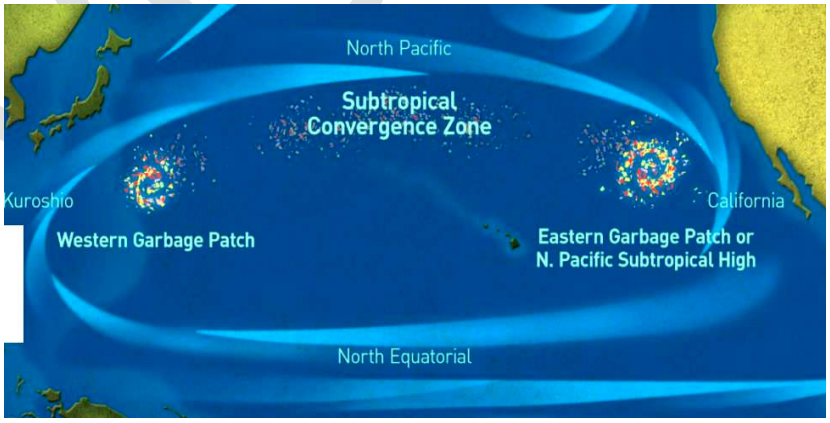
Join Telegram- https://t.me/upsc_success_time1

Q 37.B

- **Flue Gas Desulfurization (FGD)-** Flue gas is the gas exiting the atmosphere via a flue, which is a pipe or channel for conveying exhaust gases from a fireplace, oven, furnace, boiler or steam generator. Quite often, flue gas refers to the combustion exhaust gas produced at power plants.
- **It is a set of technologies used to remove SO2 from exhaust flue gases of fossil-fuel power plants. It does not use Ammonia as a reducing agent. Hence statement 1 is not correct.**
- **This is accomplished through either a wet or a dry process. Hence statement 2 is correct.**
    - Dry FGD: In the process of dry scrubbing injection systems, lime is used as a reagent to react and remove gaseous pollutants.
    - A dry injection process injects dry hydrated lime directly into the flue gas duct.
    - It yields a dry final product, collected in particulate control devices for further treatment.
    - Wet FGD: A shower of lime slurry is sprayed into a flue gas scrubber, where the SO2 is absorbed into the spray and becomes a wet calcium sulfite and wastewater.
    - FGD wastewater can be effectively and efficiently treated using large filter presses or large vacuum belt filters for very large sludge production. **Cement manufacture, construction of structural fills, and agricultural applications each utilize significant volumes of FGD products. Hence statement 3 is correct.**
    - **Ammonia is used as a reducing agent in Selective catalytic reduction (SCR)**
- Other pollution control technologies -
- **Selective non-catalytic reduction (SNCR)**
    - In the SNCR process a reagent, i.e., urea, ammonium hydroxide, anhydrous ammonia, or aqueous ammonia, is injected into flue gases in the furnace within the appropriate temperature zone.
    - The NOx and the reagent (urea, etc.) react to form N2 and H2O and do not require a catalyst.
- **Electrostatic precipitator -** An electrostatic precipitator is a filtration device that removes fine particles, like dust and smoke, from a flowing gas using the force of an induced electrostatic charge minimally impeding the flow of gases through the unit.

Q 38.D

- The Great Pacific Garbage Patch is a collection of marine debris in the North Pacific Ocean. The Great Pacific Garbage Patch, also known as the Pacific trash vortex, spans waters from the West Coast of North America to Japan.
- **The patch is actually comprised of the Western Garbage Patch, located near Japan, and the Eastern Garbage Patch, located between the U.S. states of Hawaii and California.**
- The entire Great Pacific Garbage Patch is bounded by the North Pacific Subtropical Gyre. The area in the center of a gyre tends to be very calm and stable. The circular motion of the gyre draws debris into this stable center, where it becomes trapped.
- The North Pacific Subtropical Gyre is formed by four currents rotating clockwise around an area of 20 million square kilometers (7.7 million square miles): **the California current, the North Equatorial current, the Kuroshio current, and the North Pacific current. Hence option (d) is the correct answer.**



- The amount of debris in the Great Pacific Garbage Patch accumulates because much of it is not biodegradable. Many plastics, for instance, do not wear down; they simply break into tinier and tinier pieces.
- **These patches are almost entirely made up of tiny bits of plastic (and not floating whole plastic items), called microplastics.** Microplastics cannot always be seen by the naked eye. Even satellite imagery does not show a giant patch of garbage.

Join Telegram- https://t.me/upsc_success_time1

- The microplastics of the Great Pacific Garbage Patch can simply make the water look like a cloudy soup. This soup is intermixed with larger items, such as fishing gear and shoes.
- Oceanographers and ecologists recently discovered that about 70% of marine debris actually sinks to the bottom of the ocean.

Q 39.D

- After carbon dioxide, one of the largest contributors to global warming is methane. However, global policymakers rarely took methane as a priority target until now. Recently more than 100 countries have committed to reducing methane emissions by 2030 at the United National Climate Change Conference 26 held at Glasgow under the banner of the Global Methane Pledge. **Hence statement 2 is correct.**
- Under the Global Methane Project, the countries have promised to cut 30% methane emissions by the end of this decade (2030). As a climate action strategy, the United States and the European Union have put forward this target. **Hence statement 1 is not correct.**
- It was mentioned that Methane can trap 80 times more heat compared to carbon dioxide in the first two decades after its release. Of all the heat trapped in the atmosphere, methane alone is said to be responsible for about a quarter of that since the pre-industrial era. However, the immediate warming of methane means cutting its emissions could have an almost-immediate impact on limiting Earth's temperature. The pledge undertaken by the countries reads: "The short atmospheric lifetime of methane means that taking action now can rapidly reduce the rate of global warming and that readily available cost-effective methane emission measures have the potential to avoid over 0.2 degrees Celsius of warming by 2050."The pledge has been signed by countries, namely the US, Indonesia, Mexico, and Nigeria. At the same time, some of the top emitters like India, Russia, and China remain out of this timely promise. Reportedly, India did not sign this commitment as the country's growth is largely dependent on the agriculture and livestock industries. **Hence statement 3 is not correct.**

Q 40.A

- **'Global stocktake' refers to a proposed five-yearly review of the impact of countries' climate change actions. Under the Paris Agreement, every country must present a climate action plan in five-yearly cycles. Hence option (a) is the correct answer.**
- Under the Paris Agreement, **the first global stocktake will happen in 2023.** It will assess whether the net result of the climate actions being taken was consistent with the goal of keeping the increase in global average temperature from pre-industrial times to within 2 degrees Celsius. The stocktake will help the world determine whether it needs to do more — and how much more.
- While every country is required to participate in the global stocktake, **the exercise will not assess whether the actions of any individual country are adequate or not.** It will only make an assessment of the "collective" efforts of the world.
- **Kigali Agreement** talks about phasing out the consumption and production of hydrocarbons.
- **The Marrakesh Accords** (regulatory framework for the implementation of the Kyoto Protocol) recognize five main carbon pools or reservoirs in forests: Above-ground biomass, belowground biomass, deadwood, litter, and soil organic matter.
- **Powering past coal alliance** talks about phasing out coal-based power by 2030.

Q 41.B

- **Taj Trapezium Zone (TTZ) is a defined area of 10,400 sq km around the Taj Mahal to protect the monument from pollution.** The Supreme Court of India delivered a ruling on December 30, 1996, regarding industries covered under the TTZ, in response to a PIL seeking to protect the Taj Mahal from environmental pollution.
- It banned the use of coal/ coke in industries located in the TTZ with a mandate for switching over from coal/ coke to natural gas, and relocating them outside the TTZ or shutting down.
- **The Central Government in the exercise of the powers conferred under the Environment (Protection) Act, 1986 has constituted the Taj Trapezium Zone Pollution (Prevention and Control) authority in 1998. Hence statement 1 is not correct.**
- **The TTZ comprises monuments including three World Heritage Sites the Taj Mahal, Agra Fort, and Fatehpur Sikri. TTZ is so named since it is located around the Taj Mahal and is shaped like a trapezoid. Hence statement 2 is correct.**
- **The geographical limits of the Taj Trapezium Zone is defined in the shape of a trapezoid lying in the Agra Division of the State of Uttar Pradesh and in the Bharatpur Division of the State of Rajasthan.**

Join Telegram- https://t.me/upsc_success_time1

Q 42.D

- **The Union Ministry of Environment, Forest and Climate Change (MoEF&CC) had recently released a consultation paper on the proposed amendments in Forest Conservation Act, 1980 with reference to the amendments made in 1988 in this Act.**
- Both the Forest (Conservation) Act, 1980 and Forest Act, 1927 are two separate legislations.
- The Forest (Conservation) Act, 1980, came into force to address deforestation.
- Though the **Indian Forest Act has been in force since 1927,** it was geared to allow the colonial British administration to control the extraction of timber and not aimed at preserving forests or addressing deforestation**. Hence statement 1 is not correct.**
- Till 1996, State Governments, Union Territory Administrations and Central Government used to apply the provisions of the Forest (Conservation) Act, 1980 only to the forests notified under the Indian Forest Act, 1927 or any other local law, and to forests which were under the management or control of the Forest Department.
- However, what constituted a "forest" was dramatically expanded following a **Supreme Court judgment** in a petition filed by the late **Godavarman Thirumulpad.**
    - Now, "forest" also includes all **areas recorded as "forest" in any government record,** irrespective of ownership, recognition and classification; **all areas that conformed to the "dictionary" meaning of "forest"**, an**d all areas which are identified as "forest" by an expert committee constituted by the Supreme Court** following the 1996 order. **Hence statement 2 is not correct.**

Q 43.B

- The **BASIC group was formed as the result of an agreement signed by the four countries on November 28, 2009. 2009. Hence statement 1 is not correct.** The signatory nations, all recently industrialized, committed to acting together against the lack of climate finance promised by the developed nations towards their developing counterparts. **Hence statement 3 is correct.**
- **The group includes Brazil, South Africa, India, and China. Hence statement 2 is not correct.**
- These nations have a broadly common position on reducing greenhouse gas emissions and raising the massive funds that are needed to fight climate change. The BASIC countries constituted one of the parties in the Copenhagen Accord reached with the US-led grouping; the Accord, was, however, not legally binding.
- BASIC is one of several groups of nations working together to fight climate change and carry out negotiations within the UNFCCC. Other than BASIC, there are the Organisation of Petroleum Exporting Countries (OPEC), the group of countries of Central Asia, Caucasus, Albania and Moldova (CACAM), the Cartagena Dialogue, the Independent Alliance of Latin America and the Caribbean (AILAC), and the Bolivarian Alliance for the Peoples of Our America (ALBA in Spanish), etc.
- The **bloc of four countries sought a fresh long-term climate finance goal at the UN-led COP26 summit** on climate change in Glasgow, Scotland. The bloc **highlighted a road map for the delivery of the promised $100 billion climate finance support for developing countries,** and a carbon market mechanism that facilitates private sector engagement in the fight against climate change.

Q 44.A

- Wildlife (Protection) Act, 1972 was enacted for the protection of plants and animal species.
- Bodies Constituted under the Act.
- **National Board for Wildlife (NBWL)**
    - It is the apex body for the review of all wildlife-related matters and for the approval of projects in and around national parks and sanctuaries.
    - It is chaired by the Prime Minister and is responsible for the promotion of conservation and development of wildlife and forests.
    - The board is 'advisory' in nature and can only advise the Government on policymaking for the conservation of wildlife.
- State Board for Wildlife (SBWL)
    - It is constituted by the state governments.
    - It is chaired by the Chief Minister of the state/UT.
- **Central Zoo Authority**
    - It provides recognition to zoos and regulates the zoos across the country.
    - It lays down guidelines and prescribes rules for the transfer of animals among zoos nationally and internationally.
    - It consists of a total 10 members including the Chairperson (Environment Minister) and a Member-Secretary.

Join Telegram- https://t.me/upsc_success_time1

- **National Tiger Conservation Authority (NTCA)**
  - It was constituted in 2005 for strengthening tiger conservation.
  - It is chaired by the Union Environment Minister.
  - On the recommendations of NTCA, the Central Government declares an area as a Tiger Reserve.
- **Wildlife Crime Control Bureau (WCCB)**
  - It has been established to combat organized wildlife crime in the country.
  - It collects, collate, and disseminates intelligence related to organized wildlife crime activities.
  - It advise the Government of India on issues relating to wildlife crimes having national and international ramifications, relevant policy and laws.
- **Animal Welfare Board of India**
  - It has been established under the Prevention of Cruelty to Animals Act, 1960.
  - It is mandated to prevent the infliction of unnecessary pain or suffering on animals.

Q 45.B

- Whenever forest land is diverted for non-forest purposes, it is mandatory under the Forest (Conservation) Act, 1980 that an equivalent area of non-forest land has to be taken up for compensatory afforestation. In addition to this, funds for raising the forest are also to be imposed on whomsoever is undertaking the diversion. The land was chosen for afforestation, if viable, must be in close proximity of reserved or protected forest for ease of management by the forest department.
- Compensatory Afforestation Fund Act, 2016 came into force on 30 September 2018. The Act established a National Compensatory Afforestation Fund under the Public Account of India and State Compensatory Afforestation Fund under the Public Account of each state. **The payments made for compensatory afforestation, net present value and others related to the project will be deposited in the fund. The State Funds will receive 90% of the payments while National Fund will receive the remaining 10%.** These funds will be regulated by State and National CAMPA. The Compensatory Afforestation Fund Rules were notified in August 2018. **Hence statement 1 is not correct**
- In April 2019, the **Ministry of Environment notified that states which have forest land of more than 75% of their geographical area need not provide non-forest land for compensatory afforestation.** Instead, land can be taken up in states with lesser forest cover. Further, it was also notified that the minimum area of compensatory land should be five hectares if the land is not contiguous to a forest. **Hence statement 2 is correct.**

Q 46.A

- **Recently, as per the US report Russia has carried out DA-ASAT (Direct Ascent- Anti-Satellite test) test by shooting down an old satellite that has created huge debris in lower earth orbit.**
- Anti-satellite weapons (ASAT) are space weapons designed to incapacitate or destroy satellites for strategic or tactical purposes. Several nations possess operational ASAT systems, although no ASAT system has yet been utilized in warfare.
- So far only **China, India (Mission Shakti), Russia, and the US** have successfully demonstrated ASAT capability.
- **Hence, option (a) is the correct answer.**

Q 47.C

- Convention on Long-Range Transboundary Air Pollution (LRTAP) is the only legally binding international instrument aimed at addressing criteria air pollutants. It entered into force in 1983 and has since been amended by eight protocols. These include protocols on sulphur dioxide (1985 Helsinki and 1994 Oslo Protocols), nitrogen oxides (1988 Sofia Protocol), heavy metals, persistent organic pollutants and funding for the scientific work of the Convention.
- **The 1985 Helsinki Protocol aims at the Reduction of Sulphur Emissions or their Transboundary Fluxes by at least 30 per cent.** Under this, the Parties shall reduce their national annual sulphur emissions or their transboundary fluxes by at least 30 per cent as soon as possible by 1993, using 1980 levels as the basis for calculation of reductions. **Hence, pair 1 is not correctly matched.**
- **The Protocol concerning the Control of Emissions of Nitrogen Oxides or their Transboundary Fluxes was adopted in Sofia in 1988.** The Protocol requires Parties to control or reduce emissions of nitrogen oxides. The general reference year is 1987 (with the exception of the United States that chose to relate its emission target to 1978). **Hence, pair 2 is not correctly matched.**
- **The Protocol concerning the Control of Emissions of Volatile Organic Compounds or their Transboundary Fluxes was adopted in Geneva (Switzerland) on 18 November 1991.** It targets the reduction of Volatile Organic Compounds (VOCs), a major air pollutant responsible for the formation of ground-level ozone. **Hence, pair 3 is correctly matched.**

Join Telegram- https://t.me/upsc_success_time1

Q 48.C

- **Established in 1994, the United Nations Convention to Combat Desertification (UNCCD) is the sole legally binding international agreement linking environment and development to sustainable land management.** The Convention addresses specifically the arid, semi-arid, and dry sub-humid areas, known as the drylands, where some of the most vulnerable ecosystems and peoples can be found. **Hence statement 1 is correct**
- The Convention's 197 parties work together to improve the living conditions for people in drylands, to maintain and restore land and soil productivity, and to mitigate the effects of drought. The UNCCD is particularly committed to a bottom-up approach, encouraging the participation of local people in combating desertification and land degradation. The UNCCD secretariat facilitates cooperation between developed and developing countries, particularly around knowledge and technology transfer for sustainable land management.
- The **new UNCCD 2018-2030 Strategic Framework** is the most comprehensive global commitment to achieve Land Degradation Neutrality (LDN) in order to restore the productivity of vast expanses of degraded land, improve the livelihoods of more than 1.3 billion people, and reduce the impacts of drought on vulnerable populations to build a future that avoids, minimizes, and reverses desertification/land degradation and mitigates the effects of drought in affected areas at all levels and to achieve a land degradation-neutral world consistent with the 2030 Agenda for Sustainable Development.

List of progress indicators used to report on strategic objectives 1–5 of the Strategy

Strategic objective 1: To improve the condition of affected ecosystems	
SO 1-1	Trends in land cover
SO 1-2	Trends in land productivity or functioning of the land
SO 1-3	Trends in carbon stocks above and below ground
Strategic objective 2: To improve the living conditions of affected populations	
SO 2-1	Trends in population living below the relative poverty line and/or income inequality in affected areas
SO 2-2	Trends in access to safe drinking water in affected areas
Strategic objective 3: To mitigate, adapt to, and manage the effects of drought in order to enhance resilience of vulnerable populations and ecosystems	
	Monitored through qualitative information
Strategic objective 4: To generate global environmental benefits through effective implementation of the United Nations Convention to Combat Desertification	
SO 4-1	Trends in carbon stocks above and below ground
SO 4-2	Trends in abundance and distribution of selected species
Strategic objective 5: To mobilize substantial and additional financial and non-financial resources to support the implementation of the Convention by building effective partnerships at global and national level	
SO 5-1	Trends in international bilateral and multilateral official development assistance
SO 5-2	Trends in domestic public resources
SO 5-3	Trends in number of co-financing partners
SO 5-4	Resources mobilized from innovative sources of finance, including from the private sector

- **Hence statement 2 is correct**

Join Telegram- https://t.me/upsc_success_time1

Q 49.B

- **The 'water plus city' certification is awarded to cities with best practices in the safe discharge of sewage and faecal sludge, safe cleaning of sewer and septic tanks using mechanised equipment, availability of desludging vehicles, jetting machines, treatment of sewage, and installation of grate screens among other parameters. Hence statement 1 is not correct.**
- **The certification was awarded under the Swachh Bharat Mission and Swachh Survekshan assessment. Hence statement 2 is correct.**
- Indore, the country's cleanest city, has now been declared as the first 'water plus' city of India under the Swachh Survekshan 2021.

Q 50.D

- The Convention on Biological Diversity (CBD) is the **international legal instrument** for "the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources" that has been ratified by 196 nations. Its overall objective is to encourage actions, which will lead to a sustainable future.
- The Convention on Biological Diversity (CBD) entered into force on **29 December 1993**. **Hence statement 1 is correct.**
- The Convention on Biological Diversity **covers biodiversity at all levels**: ecosystems, species and genetic resources. **Hence statement 3 is correct.**
- It also covers biotechnology, including through the Cartagena Protocol on Biosafety. In fact, it covers all possible domains that are directly or indirectly related to biodiversity and its role in development, ranging from science, politics and education to agriculture, business, culture and much more.
- The Secretariat of the Convention on Biological Diversity (SCBD) is based in **Montreal, Canada**. Its main function is to assist governments in the implementation of the CBD and its programmes of work, to organize meetings, draft documents, and coordinate with other international organizations and collect and spread information. The **Executive Secretary** is the head of the Secretariat. **Hence statement 2 is correct.**

Q 51.C

- Nuclear Wastes When uranium-235 nuclei split in a nuclear reactor, they break into fission products which are also highly radioactive.
- Since one uranium atom splits into two radioactive products, there is a doubling of the number of radioactive atoms on the earth. Furthermore. uranium-235 has a half-life of more than 700 million years. Some of its fission products have shorter half-lives and decompose much faster than uranium and emit higher levels of radiation.
- **There is no method by which we can increase or decrease the rate of decay of these products. The wastes of nuclear reactors emit dangerous radiation for thousands and thousands of years. Since it is not possible to destroy these radionuclides, they must be stored somewhere on this earth in order to ensure the least harm to humans.**
- **Plutonium-239 is another nuclear waste. The plutonium-239 isotope is produced as a by-product during uranium fission. Hence statement 1 is correct.** It is an alpha particle emitter and has a long half-life of 24000 years. After about 1000 years or more, the main radioactivity from fuel rods of the nuclear reactors will be from plutonium and other such heavy elements, since by then most of the other nuclides produced in fission and having much shorter half-life will have decayed to a large extent.
- Plutonium is one of the deadliest poisons known. Plutonium does not occur naturally on earth. This element is produced either in nuclear reactors or in nuclear weapons programs.
- The plutonium produced today will have to be taken care of for thousands of years by future generations. The general approach in dealing with radioactive wastes is to concentrate and contain as much radioactivity as possible. Effluents containing only a very low level of radioactivity are allowed to be discharged into the environment.
- **Radon can diffuse through rocks and soils into the atmosphere**. **Hence statement 2 is correct.** Once the radon reaches the atmosphere it can be breathed in. The transformation into lead is very significant because the solid radioactive particles are trapped in the lungs and are acutely harmful.

Q 52.A

- The IUCN Red List of Threatened Species is the global standard for assessing the risk of extinction that individual species of animal, fungus, and plants. But we also need an optimistic vision of species conservation that presents a road map for recovery.

Join Telegram- https://t.me/upsc_success_time1

- To achieve this, the Red List assessment process has been expanded to include new classifiers of species recovery and conservation impact, known as the Green Status of Species.
- The IUCN Green Status of Species complements the Red List by providing a tool for assessing the recovery of species' populations and measuring their conservation success. **Hence, statement 1 is correct.**
- In 2020, Green Status of Species assessments became an optional part of Red List assessments. IUCN called for the development of 'Green Lists' of Species, Ecosystems and Protected Areas, in order to measure conservation success in these three areas.
- There is a wide misconception that a species assessed on a "Green "List" is no longer in need of conservation. Such species need a varying degree of conservation strategies depending on the threat. **Hence, statement 2 is not correct.**
- The Green Status assesses species against three essential facets of recovery:
  - A species is fully recovered if it is present in all parts of its range, even those that are no longer occupied but were occupied prior to major human impacts/disruption;
  - It is viable (i.e., not threatened with extinction) in all parts of the range;
  - It is performing its ecological functions in all parts of the range.

Q 53.D

- **Biofuel is a fuel that is produced through contemporary processes from biomass,** rather than by the very slow geological processes involved in the formation of fossil fuels, such as oil. Since biomass technically can be used as a fuel directly, some people use the terms biomass and biofuel interchangeably.
- Biofuels are generally classified into:-
- **First-generation biofuels** - First-generation biofuels are made from sugar, starch, vegetable oil, or animal fats using conventional technology. Common first-generation biofuels include Bioalcohols, Biodiesel, Vegetable oil, Bioethers, Biogas. **Hence pair 1 is not correctly matched.**
- **Second-generation biofuels** - These are produced from non-food crops, such as cellulosic biofuels and waste biomass (stalks of wheat and corn, and wood). Examples include advanced biofuels like biohydrogen, biomethanol. **Hence pair 2 is not correctly matched.**
- **Third-generation biofuels** - These are produced from specially engineered micro-organisms like algae. Production of biofuels from algae usually relies on the lipid content of the microorganisms. **Hence pair 3 is correctly matched.**
- **Fourth-generation biofuels**- These combine genetically engineered feedstock with genomically synthesized microorganisms, such as cyanobacteria, to efficiently generate bioenergy. The fourth-generation biofuels are in the development and experimental stages

Q 54.C

- South Asia Wildlife Enforcement Network (SAWEN) is an inter-governmental wildlife law enforcement support body of South Asian countries namely - Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka (all SAARC countries). **Hence, statement 2 is not correct.**
- SAWEN was officially launched in 2011 in Paro Bhutan. It promotes regional cooperation to combat wildlife crime in South Asia. It focuses on policy harmonization; institutional capacity strengthening through knowledge and intelligence sharing, and collaboration with regional and international partners to enhance wildlife law enforcement in the member countries. **Hence, statement 1 is correct.**
- SAWEN operates its activities from the Secretariat based in Kathmandu, Nepal. **Hence, statement 3 is correct.**

Q 55.C

- **Four Indian cities — Indore, Bengaluru, Hyderabad and Faridabad were selected by the World Economic Forum (WEF) that feature in a list of 36 cities across 22 countries and six continents, to pioneer a new roadmap for smart cities as part of the G20 Global Smart Cities Alliance.**
- **Established in June 2019, the G20 Global Smart Cities Alliance focuses on Technology Governance that unites municipal, regional and national governments, private-sector partners and cities' residents around a shared set of principles for the responsible and ethical use of smart city technologies.**
- The Alliance establishes and advances global policy norms to help accelerate best practices, mitigate potential risks, and foster greater openness and public trust.
- The Alliance partners with leading international organizations and city networks to source tried-and-tested policy approaches to govern the use of smart city technologies.

Join Telegram- https://t.me/upsc_success_time1

- The 36 "pioneer cities" selected will adopt policies for privacy protection, better broadband coverage, accountability for cyber security, increased openness of city data, and better accessibility to digital city services for disabled and elderly people.
- **The World Economic Forum serves as the secretariat for the Alliance, and as such, manages all day-to-day activities. Hence, statement 1 is correct**
- The Alliance is currently funded by partner contributions to the World Economic Forum Centre for the Fourth Industrial Revolution Japan.
- **The Alliance was established in partnership with the G20, however, stakeholders from all countries can join and contribute to Global Smart Cities Alliance efforts. Hence, statement 2 is correct.**

Q 56.D

- IUCN was founded in October **1948** as the International Union for the Protection of Nature (or IUPN) following an international conference in Fontainebleau, France.
  - The organization changed its name to the International Union for Conservation of Nature and Natural Resources in 1956 with the acronym IUCN (or UICN) with its **head quarters in Gland, Switzerland**.
- It is a membership Union composed of both government and civil society organisations. It harnesses the experience, resources and reach of its more than 1,400 Member organisations and the input of more than 18,000 experts.
- Every **four years**, IUCN convenes the IUCN World Conservation Congress where IUCN Members set the global conservation agenda by voting on recommendations and guide the Secretariat's work by passing resolutions and the IUCN Programme. **Hence statement 1 is correct.**
- The **IUCN Council** is the principal governing body of IUCN between sessions of the World Conservation Congress. IUCN Members elect Commission chairs and representatives from Member organisations to serve four-year terms on the Council. **Hence statement 2 is correct.**
- The IUCN Secretariat works with Member organisations and IUCN Commissions to move the vision of IUCN's membership into action. The Secretariat includes around 900 staff and projects in over 160 countries.
- The **six IUCN Commissions** are broad and active networks of scientists and experts providing IUCN and its Members with sound know-how and policy advice to drive conservation and sustainable development. These commissions are:
  - **Commission on Education and Communication**
  - Commission on Ecosystem Management
  - Commission on Environmental, Economic and Social Policy
  - Species Survival Commission
  - World Commission on Environmental Law
  - World Commission on Protected Areas
- **Hence statement 3 is correct.**

Q 57.A

- **The Honolulu Strategy is a framework for a comprehensive and global collaborative effort to reduce the ecological, human health, and economic impacts of marine debris worldwide. Hence option (a) is the correct answer.**
- This framework is organized by a set of goals and strategies applicable all over the world, regardless of specific conditions or challenges.
- **The Fifth International Marine Debris Conference, in March 2011**, catalyzed development of the Honolulu Strategy. Input from conference participants and stakeholders around the world was solicited and incorporated into development of the Honolulu Strategy.
- This results-oriented framework consists of three goals and associated strategies - Reduced amount and impact of land-based sources of marine debris introduced into the sea. -Reduced amount and impact of sea-based sources of marine debris, including solid waste; lost cargo; abandoned, lost, or otherwise discarded fishing gear (ALDFG); and abandoned vessels, introduced into the sea.-Reduced amount and impact of accumulated marine debris on shorelines, in benthic habitats, and in pelagic waters.
- **Sendai Framework** - The substantial reduction of disaster risk and losses in lives, livelihoods and health and in the economic, physical, social, cultural and environmental assets of persons, businesses, communities and countries.
- The Sendai Framework is the successor instrument to the Hyogo Framework for Action (HFA) 2005-2015: Building the Resilience of Nations and Communities to Disasters.

Join Telegram- https://t.me/upsc_success_time1

- **Montreal Protocol -** The Montreal Protocol on Substances that Deplete the Ozone Layer is a global agreement to protect the Earth's ozone layer by phasing out the chemicals that deplete it.
- This phase-out plan includes both the production and consumption of ozone-depleting substances. The landmark agreement was signed in 1987 and entered into force in 1989.

Q 58.C

- The Stockholm Convention is a global treaty to protect human health and the environment from POPs, which are identified chemical substances that persist in the environment, bio-accumulate in living organisms, adversely affect human health/environment, and have the property of long-range environmental transport (LRET).
- Considering its commitment towards providing a safe environment and addressing human health risks, **the Ministry of Environment, Forest and Climate Change (MoEFCC) had notified the 'Regulation of Persistent Organic Pollutants Rules, on March 5, 2018, under the provisions of the Environment (Protection) Act, 1986. Hence statement 1 is not correct.**
- The regulation inter alia prohibited the manufacture, trade, use, import and export seven chemicals namely **(i) Chlordecone, (ii) Hexabromobiphenyl, (iii) Hexabromodiphenyl ether and Heptabromodiphenylether (Commercial octa-BDE), (iv) Tetrabromodiphenyl ether and Pentabromodiphenyl ether (Commercial penta-BDE), (v) Pentachlorobenzene, (vi) Hexabromocyclododecane, and (vii) Hexachlorobutadiene,** which were already listed as POPs under Stockholm Convention.
- The Cabinet's approval for ratification of POPs demonstrates India's commitment to meet its international obligations with regard to protection of environment and human health. It also indicates the resolve of the Government to take action on POPs by implementing control measures, develop and implement action plans for unintentionally produced chemicals, develop inventories of the chemicals' stockpiles and review as well as update its National Implementation Plan (NIP).
- **The ratification process would enable India to access Global Environment Facility (GEF) financial resources in updating the NIP. Hence statement 3 is correct.**
- The Cabinet further delegated its powers to **ratify chemicals under the Stockholm Convention to Union Ministers of External Affairs (MEA) and Environment, Forest and Climate Change (MEFCC**) in respect of POPs already regulated under the domestic regulations thereby streamlining the procedure. **Hence statement 2 is correct.**

Q 59.C

- **The Coalition for Disaster Resilient Infrastructure (CDRI)** is an international coalition of **countries**, **United Nations (UN) agencies, multilateral development banks, the private sector,** and academic institutions, that aims to promote disaster-resilient infrastructure. Its objective is to promote research and knowledge sharing in the fields of infrastructure risk management, standards, financing, and recovery mechanisms. **Hence statement 2 is correct.**
- The following are CDRI's strategic priorities:
  - **Technical Support and Capacity-building:** This includes disaster response and recovery support; innovation, institutional and community capacity-building assistance; and standards and certification.
  - **Research and Knowledge Management:** This includes collaborative research; global flagship reports; and a global database of infrastructure and sector resilience.
  - **Advocacy and Partnerships:** This includes global events and initiatives; marketplace of knowledge financing and implementation agencies; and dissemination of knowledge products.
- CDRI has been conceived and conceptualised over 2018- 19 involving substantive consultations with more than 35 countries. Finally it was launched by the **Indian Prime Minister** Narendra Modi at the **2019 UN Climate Action Summit** in September **2019**. The **Sendai Framework for Disaster Risk Reduction 2015–2030** was adopted at the Third United Nations World Conference on Disaster Risk Reduction, held in **March 2015** in Sendai, Japan to adopt a concise, focused, forward-looking and action-oriented post 2015 framework for disaster risk reduction. **Hence statement 1 is not correct.**
- The **interim secretariat of the CDRI** was established at the **NDMA** Headquarters at Safdarjung Enclave, **New Delhi. Hence statement 3 is not correct.**

Q 60.D

- The Rotterdam Convention is an international treaty designed to facilitate informed decision-making by countries with regard to trade in hazardous chemicals. The Convention entered into force on February 24, 2004.
- It establishes a list of covered chemicals and requires parties seeking to export a chemical on that list to first establish that the intended importing country has consented to the import.

Join Telegram- https://t.me/upsc_success_time1

- It also requires that a party seeking to export a chemical that is not listed under the Convention but that is subject to a ban or severe restriction in its own territory must provide notice to the importing country of the proposed export.
- **The Rotterdam Convention establishes a prior informed consent ("PIC")** procedure to ensure that restricted hazardous chemicals are not exported to countries that do not wish to receive them. **Hence, option (d) is the correct answer.**
- The PIC procedure does not ban or restrict any chemicals, nor does it mean that any individual country must automatically prohibit their import.
- Parties implement the PIC procedure through extensive information exchange, priority attention to national decisions on imports, and obligations related to export controls.
- The Convention creates legally binding obligations for the implementation of the Prior Informed Consent (PIC) procedure.
- The Rotterdam Convention applies to industrial chemicals and pesticides that meet the criteria for listing under the Convention, generally because they have been banned or severely restricted in party countries or are severely hazardous pesticide formulations. Chemicals are subject to the PIC procedure if they are included in Annex III of the Rotterdam Convention.
- India acceded to the Convention on 24.05. 2006

Q 61.C

- Noise pollution is defined as unwanted or excessive sound that can have deleterious effects on human health, wildlife, and environmental quality.
- **In India earlier, noise pollution and its sources were addressed under the Air (Prevention and Control of Pollution) Act, 1981. They are now, however, regulated separately under the Noise Pollution (Regulation and Control) Rules, 2000.**
    - In exercise of the powers conferred under Environment (Protection) Act, 1986 (29 of 1986) read with rule 5 of the Environment (Protection) Rules, 1986, the Central Government made the Noise Pollution (Regulation and Control) Rules, 2000 for the regulation and control of noise-producing and generating sources.
- Noise standards for automobiles, domestic appliances, and construction equipment have been notified in Part 'E', Schedule-VI of Environment (Protection)Rules,1986, as amended on 19th May 1993. **Hence, statement 1 is correct.**
- Under the Noise Pollution (Regulation and Control) Rules, 2000, State Governments are responsible for categorizing the areas into industrial, commercial, residential or silence areas/zones for the purpose of implementation of noise standards for different areas. **Hence, statement 2 is correct.**

Q 62.D

- As carbon dioxide (CO_2) dissolves in seawater, it forms carbonic acid, decreasing the ocean's pH, a process collectively known as ocean acidification.
- Present ocean acidification occurs approximately ten times faster than anything experienced during the last 300 million years, jeopardizing the ability of ocean systems to adapt to changes in ocean chemistry due to CO_2.
- Ocean acidification has the potential to change marine ecosystems and impact many ocean-related benefits to society such as coastal protection or provision of food and income.
- **Effects of Ocean Acidification on the marine ecosystem**
    - **Ocean acidification reduces the amount of carbonate, a key building block in seawater.** This makes it more difficult for marine organisms, such as coral and some plankton, to form their shells and skeletons, and existing shells may begin to dissolve. **Hence statement 1 is not correct.**
    - **Ocean life vulnerable to ocean acidification includes Starfish, Sea butterflies, Mussels, Clams, Oysters, Scallops, Sea urchins, (pteropods) Shell-forming algae, and amoebas. Hence statement 2 is not correct.**
- Prior to the Industrial Revolution, the average ocean pH was about 8.2. Today, the average ocean pH is about 8.1. This might not seem like much of a difference, but the relationship between pH and acidity is not direct. Each decrease of one pH unit is a ten-fold increase in acidity. **Hence statement 3 is not correct.**
- **This means that the acidity of the ocean today, on average, is about 25% greater than it was during preindustrial times.**

Join Telegram- https://t.me/upsc_success_time1

Q 63.D

- Recently, on the eve of **completion of 5 years of the PMAY-G scheme and celebration of Awaas Diwas on 20th November, 2021**, States/UTs have undertaken various activities to celebrate the Diwas such as Bhoomi Pujan, Gruh Pravesh, visit of beneficiaries to demonstration houses, sensitization of beneficiaries about PMAY-G etc.
- The scheme is implemented by **Ministry of Rural Development. Hence, statement 1 is not correct.**
- PMAY-G scheme was launched on 20th November 2016 and it was made more comprehensive as it included amenities like water, gas, toilet and electricity supply in all the households.
- The main features of the scheme of PMAY-G are:
    - **Identification of beneficiaries as per the housing deprivation parameters and exclusion criteria prescribed under Socio Economic Caste Census (SECC) 2011 after due verification by Gram Sabha. Hence, statements 2 and 3 are correct.**
    - Providing assistance for construction of 2.95 crore pucca houses for eligible rural households by March, 2022 in phases: 1.00 crore houses in Phase I (2016-17 to 2018-19) and 1.95 crore houses in Phase II (2019-20 to 2021-22). The target set for 2019-20 is completion of 60 lakh houses, out of which target of 51.05 lakh houses have already been allocated to States/UT.
    - Enhancement of unit assistance from Rs. 70,000 (IAY) to Rs. 1.20 lakh in plain areas and from Rs. 75,000(IAY) to Rs.1.30 lakh in Hilly States, NE States, difficult areas and IAP districts.
    - Provision of assistance for construction of toilets amounting to Rs. 12,000/- through SBM-G, MGNREGS or any other dedicated source of funding and 90/95 days of unskilled wages under MGNREGS over and above the unit assistance.
    - Enhancement in the minimum unit size of house from 20 sq.m.(IAY) to 25 Sq.m.
    - Facilitating willing beneficiaries to avail loan from Financial Institutions for an amount of upto Rs 70,000.

Q 64.D

- Ozone is a gas composed of three atoms of oxygen. Ozone occurs both in the Earth's upper atmosphere and at ground level. Ozone can be good or bad, depending on where it is found.
- Ozone at ground level is a harmful air pollutant, because of its effects on people and the environment, and it is the main ingredient in “smog."
- **Tropospheric, or ground-level ozone, is not emitted directly into the air but is created by chemical reactions between oxides of nitrogen (NOx) and volatile organic compounds (VOC).**
- This happens when pollutants emitted by cars, power plants, industrial boilers, refineries, chemical plants, and other sources chemically react in the presence of sunlight.
- **Surface ozone is destroying around 22 million tonnes (21%) of India’s wheat yield and 6.5 million tonnes (6%) rice crop every year, a multi-institute study led by the Indian Institute of Technology-Madras (IIT-M) has revealed, with Punjab and Haryana alone accounting for losses of 16% and 11% for wheat and rice respectively.**
    - Like any other gas, surface ozone enters the plant leaves through its stomata as part of normal atmospheric gas exchange. Upon uptake, it dissolves in the water present in the plant and further reacts with other chemicals affecting photosynthesis and thereby crop yields.
- **Health Effects of Ozone Pollution**
    - Cause coughing and sore or scratchy throat.
    - Make it more difficult to breathe deeply and vigorously and cause pain when taking a deep breath.
    - Inflame and damage the airways.
    - Make the lungs more susceptible to infection.
    - Aggravate lung diseases such as asthma, emphysema, and chronic bronchitis.
    - Increase the frequency of asthma attacks.
- National Air Quality Index (AQI) was launched by the Environment Ministry in April 2015.
- There are six AQI categories, namely Good, Satisfactory, Moderately polluted, Poor, Very Poor, and Severe.
- **The AQI considers eight pollutants (PM10, PM2.5, NO2, SO2, CO, O3, NH3, and Pb) for which short-term (up to 24-hourly averaging period) National Ambient Air Quality Standards are prescribed.**
- **Hence option (d) is the correct answer.**

Join Telegram- https://t.me/upsc_success_time1

Q 65.D

There are two types of carbon markets:

- **Regulatory compliance markets**
  - The compliance market is used by companies and governments that by law have to account for their GHG emissions. It is regulated by mandatory national, regional or international carbon reduction regimes.
- **Voluntary markets**
  - In the voluntary market, the trade of carbon credits is on a voluntary basis.
  - Voluntary carbon credits (VER) are mainly purchased by the private sector.
  - Corporate social responsibility (CSR) and public relations are the most common motivations for buying carbon credits. Other reasons are considerations such as certification, reputation and environmental and social benefits.
  - Carbon credits on the voluntary markets are called **Verified Emission Reductions (VER). Hence option 3 is correct.**
- Under **Kyoto Protocol,** two major mechanisms of **regulated carbon trading markets** are:
  - **Clean Development Mechanism (CDM**
    - Under the Kyoto Protocol developing countries (Non Annex I countries) are not obliged to reduce their GHG emissions, whereas industrialized countries (Annex I countries) have to fulfill specified targets.
    - They can achieve these by reducing GHG emissions in their own country; implementing projects to reduce emissions in other countries; or trading.
    - An industrialized country implements an emission reduction project in a developing country. This can be afforestation, energy efficiency or a renewable energy project. Because of the uptake or savings of GHGs, carbon credits (CER) are generated.
    - The carbon credits from CDM projects are called **Certified Emission Reductions (CER). Hence, option 1 is correct.**
  - **Joint Implementation (JI)**
    - Any Annex I country can invest in a project to reduce greenhouse gas emissions in any other Annex I country (referred to as a "Joint Implementation Project") as an alternative to reducing emissions domestically.
    - In this way countries can lower the costs of complying with their Kyoto targets by investing in projects where reducing emissions may be cheaper and applying the resulting **Emission Reduction Units (ERUs)** towards their commitment goal. **Hence, option 2 is correct.**
    - The emission reduction unit (ERU) is an emissions unit issued under a Joint Implementation project.

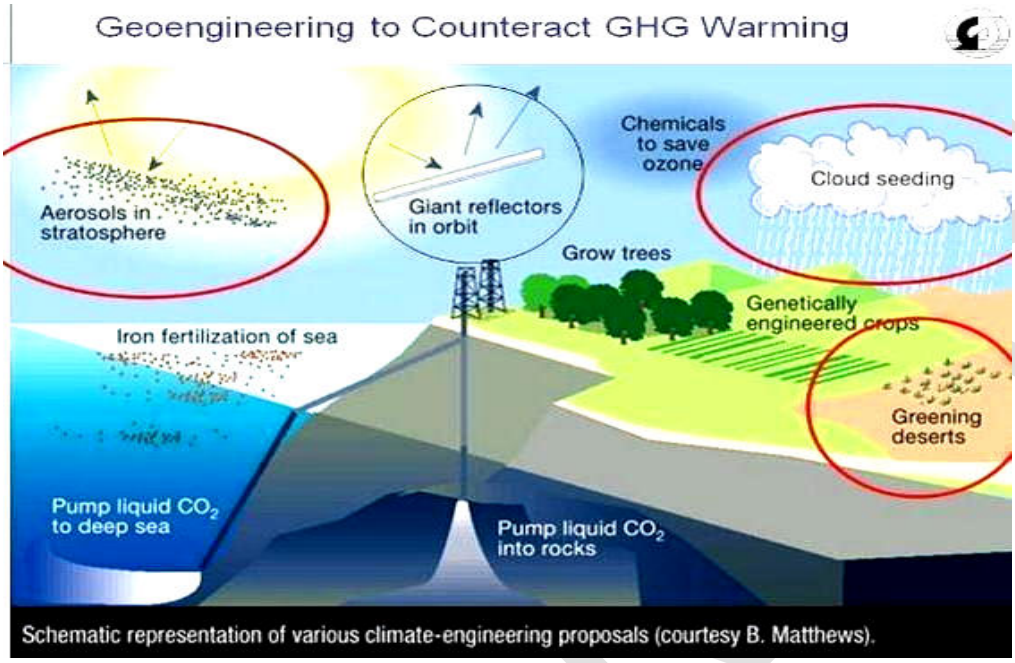
Q 66.A

- **UNCCD** has recently renewed its partnership with Senegalese musician, Baaba Maal, who is one of the six **UNCCD Land Ambassadors**. Hailing from the region of the Senegal River which is home to millions of people living in four Western African countries: Senegal, Mali, Guinea and Mauritania, the music legend has vowed to fight desertification and climate change in the Sahel, by planting trees and making it a land of green, as part of Great Green Wall Initiative which works to transform lives of humanity's most vulnerable people by creating green jobs, harnessing the Sahel's abundant solar energy and building and prosperous future on land.
- The **Great Green Wall initiative was launched in 2007 by the African Union**, this game-changing African-led initiative aims to restore Africa's degraded landscapes and transform millions of lives in one of the world's poorest regions, the Sahel. **Hence, statement 2 is not correct.**
- Once complete, the Wall will be the largest living structure on the planet – **an 8,000 km natural wonder of the world stretching across the entire width of the continent. It spans across the Sahel region from Senegal in the West to Djibouti in the East of Africa. Hence, statement 1 is correct.**
- The Great Green Wall is now being implemented in more than 20 countries across Africa and more than eight billion dollars have been mobilized and pledged for its support.
- The initiative brings together African countries and international partners, under the leadership of the African Union Commission and Pan-African Agency of the Great Green Wall.
- By 2030, the ambition of the initiative is to restore 100 million ha of currently degraded land; sequester 250 million tons of carbon and create 10 million green jobs.

Join Telegram- https://t.me/upsc_success_time1

Q 67.C

- Geoengineering is the intentional manipulation of the climate system to counteract global climate change. Scientists have speculated on a wide array of geoengineering schemes that fall into two sets of strategies. One **set aims at massive efforts to remove CO2 from the atmosphere to reduce the greenhouse effect. An example of this type of strategy is to engineer machines, "artificial trees,"** that capture carbon from the ambient air and sequester it, for instance, in abandoned oil or gas fields. The other set of **strategies has been called solar radiation management (SRM).** This general approach aims to cool the earth by reflecting incoming solar radiation, either in the upper atmosphere or at or near the earth's surface.



Some of the proposed methods of Geo-Engineering to avoid Global Warming and mitigate climate change are as follows:

- **Blasting sulfate particles** into the upper atmosphere to reflect the sun's rays;
- **Dumping iron particles in the oceans to nurture CO2-absorbing plankton;**
- **Firing silver iodide into clouds to produce rain;**
- **Shooting mirrors into space** to deflect enough sunlight to bring Earth's climate back to its pre-industrial level
- **Genetically engineering crops to have reflective leaves;**
- Spraying seawater into clouds to make clouds whiter;
- Dumping large quantities of plant matter into the ocean or turning it into charcoal for burying in soils.
- **Hence option (c) is the correct answer**

Q 68.A

- The Rotterdam Convention (formally, the Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade) **is a legally binding multilateral treaty. The Convention seeks to promote shared responsibility and cooperative efforts among State Parties in the international trade of certain hazardous chemicals in order to protect human health and the environment from potential harm. Hence, statement 1 is correct.**
- The convention promotes open exchange of information and calls on exporters of hazardous chemicals to use proper labeling, include directions on safe handling, and inform purchasers of any known restrictions or bans.
- **The Convention covers both pesticides and industrial chemicals** that have been banned or severely restricted for health or environmental reasons by Parties and which have been notified by Parties for inclusion in the PIC procedure.
- Each Party is required to designate a National Authority for performing the administrative functions required under the Convention. In India, Department of Chemicals and Petrochemicals is the Designated National Authority (DNA) for industrial chemicals and **Department of Agriculture and Co-operation is the Designated National Authority (DNA) for pesticides. Hence, statement 2 is not correct.**

Join Telegram- https://t.me/upsc_success_time1

Q 69.C

- Environmental Impact Assessment is a tool that helps to evaluate the environmental impact of proposed developmental projects or programs are visualized clearance accorded after mitigation strategies are included in the plan. EIA thus proves to be a tool that improves decision making and ensures that the project under construction is environmentally sound and within limits of the capacity of assimilation and regeneration capacities of the ecosystem.
- The EIA process looks into the following components of the environment:
  - **Air Environment:** Quality of ambient air; **Wind speed, direction, humidity, etc;** Quantity of emission likely from the project; Impact of the emission on the area; Pollution control desires/air quality standards.
  - **Noise Environment: Levels of noise present and predicted•** Strategies for reducing noise pollution.
  - **Water Environment: Existing ground and surface water resources, their quality, and quantity within the zone;** Impact of the proposed project on water resources.
  - **Land Environment:** Study of soil characteristics, land use, and drainage pattern, and the likely adverse impact of the project; **Impact on historical monuments and heritage sites.**
  - **Biological Environment:** Flora and fauna in the impact zone; Potential damage (likely) due to project, due to effluents, emissions, and landscaping; Biological stress (prediction).
- **Hence option (c) is the correct answer**

Q 70.C

- Wind energy is the kinetic energy associated with the movement of air. Large wind turbines convert this energy into mechanical energy which is further used for generating electricity. India has large wind potential with Tamil Nadu having a maximum capacity of more than 9000 MW.

State-wise & Year-wise Wind Power Installed Capacity (in MW) (as on 31.03.2020)

State	Uo to 2019	2019-20
Tamil Nadu	8968.89	335.44
Karnataka	4694.9	95.70
Maharashtra	4794.18	206.20
Rajasthan	4299.65	00.00
Andhra Pradesh	4090.5	2.00
Madhya Pradesh	2519.9	0.0
Kerala	52.9	10.00
Gujarat	6073.05	1468.45
Telangana	128.1	00.00
Others	4.3	0.0
Total	35626.37	2117.79
Cumulative Capacity	35626.37	37744.16

- The total capacity is the addition of the values (up to 2019 + 2019-20) for a given state,
  - For, Gujarat it is 6073.05 + 1468.45 = 7541.50
  - For, Maharashtra it is 4794.19 + 206.20 = 5000.39
  - For, Karnataka it is 4694.90 + 95.70 = 4790.60
  - For Tamil Nadu, it is 8968.89 + 335.44 = 9304.33
- **Thus the correct order is Tamil Nadu > Gujarat > Maharashtra > Karnataka. Hence the correct order of the given question is 2-3-4-1. Hence option (c) is the correct answer.**

Q 71.B

- Environment Impact Assessment or EIA can be defined as the study to predict the effect of a proposed activity/project on the environment. A decision-making tool, EIA compares various alternatives for a project and seeks to identify the one which represents the best combination of economic and environmental costs and benefits.

Join Telegram- https://t.me/upsc_success_time1

- The first EIA notification was promulgated in 1994 by the then Ministry of Environment and Forests (now the Ministry of Environment, Forests, and Climate Change). The **Environment Impact Assessment in India is statutorily backed by the Environment Protection Act, 1986 which contains various provisions on EIA methodology and process. Hence statement 1 is correct**
- Projects such as mining, thermal power plants, river valley, infrastructure (road, highway, ports, harbors, and airports), and industries including very small electroplating or foundry units are mandated to get environment clearance.
- The **Environment Impact Assessment Rules as formulated in 2006 require a proponent of a project to submit a compliance report of the EIA to the concerned authorities every 6 months.** While the new draft notification of 2020 which is not accepted and ratified yet makes it once a year. **Hence statement 2 is not correct**
- All persons including bona fide residents, environmental groups, and others located at the project site of displacement/sites likely to be affected are allowed to participate in the public hearing. The stakeholders can also make oral/written suggestions to the State Pollution Control Board. **There is no cap on the number of people participating in a public hearing of the EIA.** While there is a Public hearing panel that may consist of the District Collector, representatives from the local bodies, and other state government personnel dealing with the subject matter. **Hence statement 3 is not correct**

Q 72.A

- The Convention on Wetlands is an intergovernmental treaty adopted on 2 February 1971 in the Iranian city of Ramsar (thus the common name "Ramsar Convention"). It is the first of the modern global intergovernmental treaties on the conservation and sustainable use of natural resources.
- One key instrument of the Convention is its **List of Wetlands of International Importance (the "Ramsar List"). All Parties to the Convention have the obligations to include in the List at least one site that meets the criteria established by the Conference of the Parties.** There are currently over 2,400 Ramsar Sites around the world. They cover over 2.5 million square kilometers, an area larger than Mexico. **Hence statement 2 is correct**
- The Ramsar Convention has adopted a very inclusive definition of a wetland: **"…wetlands are areas of marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tide does not exceed six meters." Hence statement 1 is not correct**
- The Ramsar Convention works closely with six organizations known as International Organization Partners (IOPs). These are:
  - Birdlife International
  - International Union for Conservation of Nature (IUCN)
  - International Water Management Institute (IWMI)
  - Wetlands International
  - WWF
  - International Wildfowl & Wetlands Trust (WWT). **Hence statement 3 is not correct**

Q 73.C

- **Perform Achieve and Trade (PAT) scheme is a flagship program of the Bureau of Energy Efficiency under the National Mission for Enhanced Energy Efficiency (NMEEE).** NMEEE is one of the eight national missions under the National Action Plan on Climate Change (NAPCC) launched by the Government of India in the year 2008.
- **PAT scheme is a market-based compliance mechanism to accelerate improvements in energy efficiency in energy-intensive industries.** The energy savings achieved by notified industries is converted into tradable instruments called Energy Saving Certificates (ESCerts). The ESCerts after issuance by the Bureau of Energy Efficiency are traded at Power Exchanges.
- **Hence, option (c) is the correct answer.**

Q 74.D

- **The Gothenburg Protocol was established to address pollutants that cause acidification and ground-level ozone with the understanding that air pollutants cross borders and affect air quality far from where emitted.** It sets limits on air pollutants including sulphur dioxide, nitrogen oxide, ammonia and volatile organic compounds that are hazardous to human health and the environment.
- The Gothenburg Protocol under the United Nations Economic Commission for Europe's (UNECE) LRTAP Convention was amended in 2012 to add particulate matter (PM) and new commitments for 2020 and beyond. The objective of the amended Gothenburg Protocol is:

Join Telegram- https://t.me/upsc_success_time1

- to control and reduce emissions of **sulphur dioxide (SO2), nitrogen oxides (NOx), ammonia (NH4), volatile organic compounds (VOCs), and PM** that are caused by human activities and likely to cause adverse effects on human health and the environment, ecosystems, crops, materials and the climate, in the short- and long-term as a result of long-range atmospheric transport;
- to ensure that atmospheric depositions or concentrations do not exceed critical loads/levels;

- **Also, the Parties have broken new ground in international air pollution policy by specifically including the short-lived climate pollutant black carbon (or soot) as a component of particular matter.** Reducing particulate matter (including black carbon) through the implementation of the Protocol is thus a major step in reducing air pollution, while at the same time facilitating climate co-benefits.
- **Hence, option (d) is the correct answer.**

Q 75.B

- **The Minamata Convention on Mercury is a global treaty to protect human health and the environment from the adverse effects of mercury.** The Minamata Convention draws attention to a global and ubiquitous metal that, while naturally occurring, has broad uses in everyday objects and is released to the atmosphere, soil, and water from a variety of sources. Controlling the anthropogenic releases of mercury throughout its lifecycle has been a key factor in shaping the obligations under the Convention. **Hence pair 3 is correctly matched**
- The **Stockholm Convention on Persistent Organic Pollutants** was adopted by the Conference of Plenipotentiaries on 22 May 2001 in Stockholm, Sweden. The Convention entered into force on 17 May 2004. The Stockholm Convention on Persistent Organic Pollutants is a global treaty to protect human health and the environment from chemicals that remain intact in the environment for long periods, become widely distributed geographically, accumulate in the fatty tissue of humans and wildlife, and have harmful impacts on human health or the environment. **Hence pair 2 is correctly matched**
- The **Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal** was adopted on 22 March 1989 by the Conference of Plenipotentiaries in Basel, Switzerland, in response to a public outcry following the discovery, in the 1980s, in Africa and other parts of the developing world of deposits of toxic wastes imported from abroad. The overarching objective of the Basel Convention is to protect human health and the environment against the adverse effects of hazardous wastes. Its scope of application covers a wide range of wastes defined as "hazardous wastes" based on their origin and/or composition and their characteristics, as well as two types of wastes defined as "other wastes" - household waste and incinerator ash. **Hence pair 1 is correctly matched**

Q 76.A

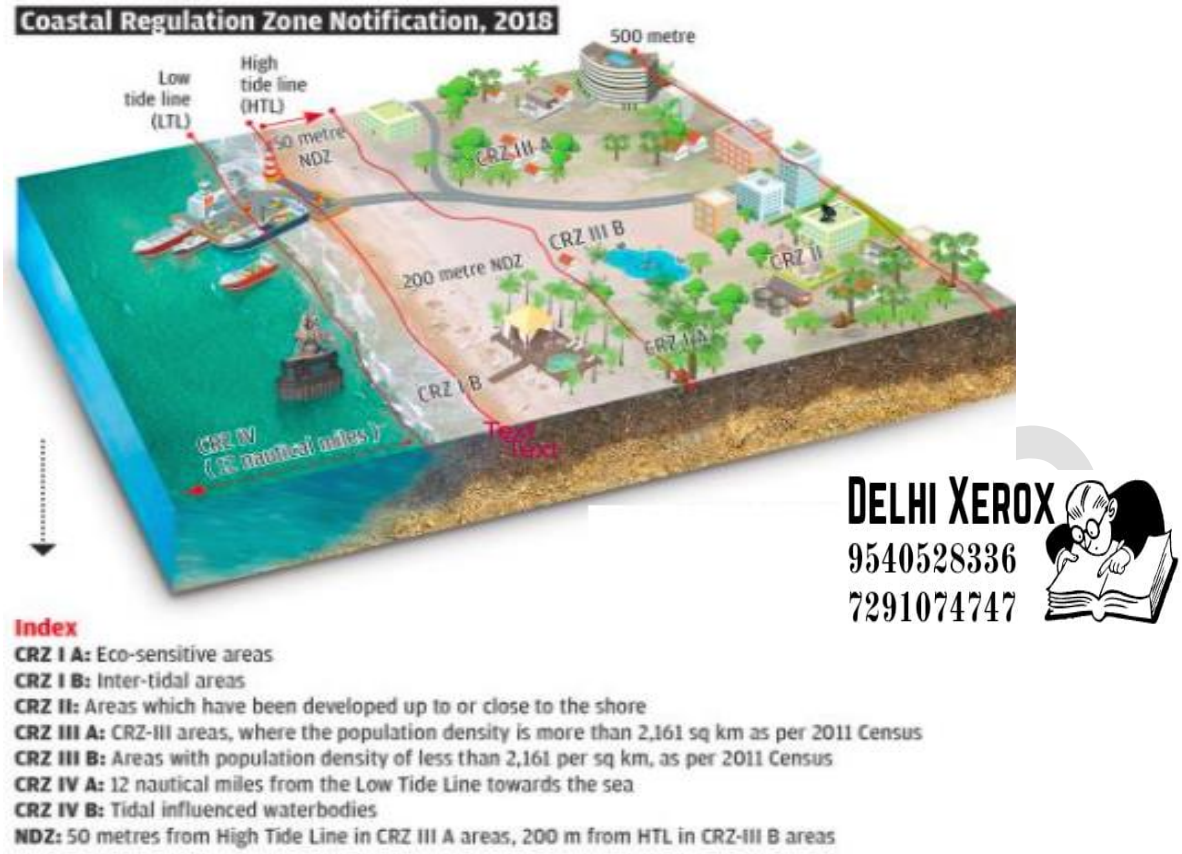
- **Recently, a draft notification has been issued proposing amendments to the Coastal Regulation Zone (CRZ) notifications, 2019.**
- **Key changes proposed:**
  - Development and production of oil and natural gas and shall be exempted from prior CRZ clearance.
  - Purely temporary and seasonal structures (shacks) may be retained during the monsoon season with adequate precautions.
  - Till Integrated Island Management Plan (IIMP) are formulated by respective states/UTs, CRZ notification 2011 shall continue to apply
  - **The sand bars in the intertidal areas shall be removed by traditional coastal communities only by manual method.**

These are proposed changes not yet made official.

- **Under the Environment Protection Act, 1986 a notification was issued in February, 1991, for regulation of activities in the coastal area by the Ministry of Environment and Forests (MoEF). Hence, statement 1 is correct.**
- Coastal Regulation Zones:
  - CRZ-1 allows eco-tourism activities such as mangrove walks, tree huts, nature trails, in eco-sensitive areas, demarcated as CRZ-IA. Sea links, salt harvesting and desalination plants and roads on stilts are also allowed in CRZ-IA. The controversial land reclamation, in which new land is created from oceans or lake beds and is known to have strong impacts on coastal ecology, has been allowed in intertidal or CRZ-IB areas, for ports and sea links.
  - CRZ-II includes a substantially built-up area, project developers can now increase the floor area ratio or floor space index, and build resorts and other tourism facilities.
  - CRZ 3 areas includes land areas that are relatively undisturbed and those which do not fall under CRZ 2, are categorized into CRZ 3A and 3B based on the density of population.

Join Telegram- https://t.me/upsc_success_time1

- **CRZ-IV, includes the shallow belt of coastal waters extending up to 12 nautical miles. Hence, statement 2 is not correct.**



DELHI XEROX
9540528336
7291074747

Q 77.C

- **Recently, Birsa Munda's birthday was celebrated as 'Janjatiya Gaurav Divas' or tribal pride day.**
- The cause of the Munda revolt was the unfair land grabbing practices by colonial and local authorities that demolished the tribal conventional land system. **Hence, statement 1 is correct.**
- The precursor to Munda rebellion was Sardari movement, which adopted a peaceful method of petitioning their grievances to several British government officials demanding the restoration of their rights.
- In 1895, when the **Sardari movement** was on the decline, Birsa claimed to have seen a vision of god, and he proclaimed himself a prophet. He proclaimed himself a prophet of a new religion with the mission of liberating his community from the yoke of British imperialism. The aim was to diminish the differences that existed between different Adivasi communities and bring them together; first under a single religious movement and later into a single political community.
- He took elements from Vaishnavism, Christianity and Mundari religion to propound his own 'religion', which at the same time was distinct from all the three. **Hence, statement 2 is correct.**

Q 78.C

- **The Carbon Intensity Indicator (CII) is a measure of how efficiently a ship transports goods or passengers and is given in grams of CO_2 emitted per cargo-carrying capacity and nautical mile. Hence, option (c) is the correct answer.**
- The ship is then given an annual rating ranging from A to E, whereby the rating thresholds will become increasingly stringent towards 2030.
- The CII applies to all cargo and cruise ships above 5,000 GT (Giga Tonne).
- The CII is based directly on fuel consumption, which is influenced by how a specific ship is operated in combination with its technical efficiency and fuel.
- Its value will be affected by the type of fuel used, the efficiency of the vessel and operational parameters such as vessel speed, cargo transported, weather conditions and the general condition of the vessel (e.g. biofouling).
- The yearly CII is calculated based on reported International Maritime Organisation (IMO) data.

Join Telegram- https://t.me/upsc_success_time1

Q 79.C

- Methanol is a low carbon, hydrogen carrier fuel produced from high ash coal, agricultural residue, CO2 from thermal power plants, and natural gas. It is the best pathway for meeting India's commitment to COP 21. NITI Aaayog has drawn out a road map to substitute 10% of Crude imports by 2030, with Methanol alone.
- **Statement 1 is not correct: Methanol has slightly lower energy efficiency (22.7 MJ/Kg) than petrol (44-46 MJ/Kg) and diesel (42-46 MJ/Kg)** however it can replace both these fuels in the transport sector (road, rail, and marine), the energy sector (comprising tractors and commercial vehicles), and retail cooking (replacing kerosene and wood charcoal).
- **Statement 2 is correct:** Methanol burns efficiently in all internal combustion engines. The gaseous version of Methanol – DME (Dimethyl Ether) can be blended with LPG and can be an excellent substitute for diesel in Large buses and trucks.
- **Statement 3 is correct:** Methanol produces no particulate matter, no soot, almost nil SOX and NOX emissions (Near Zero Pollution). It can be produced from Natural Gas, Indian High Ash Coal, Bio-mass, MSW, stranded and flared gases, etc.

Q 80.D

- **Recently, Parliamentary Standing Committee on Information Technology pulled up Centre government over internet shutdowns.**
- Nearly 70% of cases of internet shutdowns globally happened in India in 2020, according to a new report by Access Now, a global non-profit that works on digital rights and online freedom. Out of the 155 instances of internet disruptions, 109 were recorded in India, followed by Yemen with six instances.
- Legal provisions related to internet shutdowns in India:
  - Until 2017, internet shutdowns were mostly governed under **Section 144 of Code of Criminal Procedure (CrPC) and Indian Telegraph Act, 1885**.
  - In 2017, T**emporary Suspension of Telecom Services (Public Emergency or Public Safety) Rules** were notified. Despite this rule, government has also used broad powers under Section 144. In addition to this, new rules were notified by amending the Indian Telegraph Act.
- **Section 69(A) of the IT (Amendment) Act, 2008** gives the government powers to block particular websites, not the Internet as a whole.
- **Internet shutdown orders can only be passed by Home secretary of Union or State, which is to be reviewed by a committee within 5 days of passing the order.** Before 2017, DM/SDM/executive magistrate were empowered to issue internet shutdown orders.
  - In the case of the central government, the review committee comprises the Cabinet Secretary and the Secretaries of the Departments of Legal Affairs and Telecommunications.
  - In the case of states, the committee comprises the Chief Secretary, Secretary, Law or Legal Remembrancer In-Charge, Legal Affairs, and a Secretary to the state government (other than the Home Secretary). In "unavoidable circumstances", the order can be issued by an officer of the rank of Joint Secretary or above, authorized by the Centre or the state Home Secretary.
- **Despite the 2017 rules, the government has often used the broad powers under Section 144. The Supreme Court in its recent judgement (January 2020) declared that the fundamental right to freedom of speech and expression and the right to carry on trade or business using the Internet are constitutionally protected.** This came in the backdrop of the five-month-long Internet shutdown in Kashmir. **The Supreme Court in its recent judgement recognised that the 2017 Rules are the only procedure to be followed to suspend Internet services in the occurrence of a "public emergency" or for it to be "in the interest of public safety".**
  - Quoting from the 2017 Rules, the verdict reiterated that the competent authority to issue an order under the Suspension Rules, in ordinary circumstances, would be the Secretary to the Ministry of Home Affairs.
  - The Rules also say that in case the confirmation does not come from a competent authority, the orders shall cease to exist within a period of 24 hours.
  - Clear reasons for such orders need to be given in writing, and need to be forwarded to a Review Committee by the next working day.
  - Further, the confirmation must not be a mere formality, but must indicate independent application of mind by the competent authority to the order passed by the authorised officer, who must also take into account changed circumstances if any, etc.
  - When these orders are made available, an individual can challenge the orders in court on grounds of proportionality.
  - While suspension orders were always subject to judicial review, lack of availability of such orders in public domain prevented such challenges before courts.

Join Telegram- https://t.me/upsc_success_time1

- The court also ruled that the government cannot refuse to publish such orders citing logistical inconvenience.
- Although the Suspension Rules does not provide for publication or notification of the orders, the court said that order, particularly one that affects lives, liberty and property of people, must be made available.

- **Hence, option (d) is the correct answer.**

Q 81.C

- Recently Union Minister for Road Transport & Highways and Minister for Micro, Small and Medium Enterprises has virtually inaugurated **the additional capacity of one MLD (Millions of Liter per Day) and Zero Liquid Discharge (ZLD) system of Common Effluent Treatment Plant (CETP) at Ranipet Tannery Effluent Treatment Company Ltd (RANITEC), in Ranipet of Tamil Nadu.**
- **Statement 1 is not correct:** It is a technique used for the treatment of industrial waters, while many water treatment processes attempt to maximize recovery of freshwater and minimize waste Zero liquid discharge (ZLD) is an engineering approach to water treatment where all water is recovered and contaminants are reduced to solid waste.
- **Statement 2 is correct:** It works on the basic principle of Reverse Osmosis (R.O.) by treating industrial and produced waters with high organics and solvents while maintaining membrane integrity. It is also beneficial as it results in reduced disposal costs, more water can be re-used, and fewer greenhouse gases are produced
- **Statement 3 is correct:** Wastewater is converted into solids for disposal. It has the potential for recovering resources that are present in wastewater. ZLD is targeted by many organisations for their waste because they can sell the solids that are produced or reuse them as a part of their industrial process By operating an in-house ZLD plant.

Q 82.A

- **The National Biofuel Policy 2018** categorizes biofuels as "Basic Biofuels" viz. First Generation (1G) bioethanol & biodiesel and "Advanced Biofuels" - Second Generation (2G) ethanol, Municipal Solid Waste (MSW) to drop-in fuels, Third Generation (3G) biofuels, bio-CNG, etc. to enable the extension of appropriate financial and fiscal incentives under each category.
- **The Policy expands the scope of raw material for ethanol production by allowing the use of Sugarcane Juice, Sugar containing materials like Sugar Beet, Sweet Sorghum, Starch containing materials like Corn, Cassava, Damaged food grains like wheat, broken rice, Rotten Potatoes, unfit for human consumption for ethanol production.**
- With a thrust on Advanced Biofuels, the Policy indicates a viability gap funding scheme for 2G ethanol Bio refineries of Rs.5000 crore in 6 years in addition to additional tax incentives, higher purchase price as compared to 1G biofuels.
- It encourages the setting up of supply chain mechanisms for biodiesel production from non-edible oilseeds, Used Cooking Oil, short gestation crops.

Q 83.C

- Green Crackers are environmentally friendly fireworks and can reduce the air pollution caused by traditional firecrackers. **These have been developed by the National Environmental and Engineering Research Institute (NEERI), a Council of Scientific and Industrial Research (CSIR) lab.**
- **Green crackers don't contain banned chemicals such as lithium, arsenic, barium and lead. They are called Safe Water Releaser (SWAS), Safe Thermite Cracker (STAR) and Safe Minimal Aluminium (SAFAL) crackers. Hence option (c) is the correct answer.**
- These green crackers have been given three different names:
- **SWAS – Safe Water Releaser**-They will release water vapour in the air which will suppress the dust released.
  - It will not comprise potassium nitrate and sulphur.
  - A diluent will be released for gaseous emissions.
  - The particulate dust released will reduce by approximately 30 percent.
- **STAR – Safe Thermite Cracker**-Does not comprise potassium nitrate and sulphur.
  - Reduced particulate matter disposal.-Reduced sound intensity.
- **SAFAL – Safe Minimal Aluminium**
  - Minimum usage of aluminum.
  - Usage of magnesium instead of aluminum.
  - Reduction in sound in comparison to traditional crackers.

Join Telegram- https://t.me/upsc_success_time1

Q 84.D

- A study estimates that **crop residue burning released 149.24 million tonnes of carbon dioxide (CO2), over 9 million tonnes of carbon monoxide (CO), 0.25 million tonnes of oxides of sulphur (SOX), 1.28 million tonnes of particulate matter and 0.07 million tonnes of black carbon. Hence statement 1 is correct.**
- These directly contribute to environmental pollution, and are also responsible for the haze in Delhi and melting of Himalayan glaciers.
- **The heat from burning paddy straw** penetrates 1 centimetre into the soil, elevating the temperature to 33.8 to 42.2 degree Celsius. **This kills the bacterial and fungal populations critical for a fertile soil. Hence statement 2 is correct.**
- Burning of crop residue causes damage to other micro-organisms present in the upper layer of the soil as well as its organic quality. Due to the loss of 'friendly' pests, the wrath of 'enemy' pests has increased and as a result, crops are more prone to disease. The solubility capacity of the upper layers of soil have also been reduced.
- According to a report, **one tonne stubble burning leads to a loss of 5.5 kilogram nitrogen, 2.3 kg phosphorus, 25 kg potassium and more than 1 kg of sulfur — all soil nutrients, besides organic carbon.**
- **Burning crop residue is a crime under Section 188 of the IPC and under the Air and Pollution Control Act of 1981. However, government's implementation lacks strength. Hence statement 3 is correct.**

Q 85.B

- Union Minister of Petroleum and Natural Gas & Skill Development and Entrepreneurship launched an innovative initiative with PSU Oil Marketing Companies (OMCs) from potential entrepreneurs to set up **Compressed Bio-Gas (CBG)** production plants and make available CBG in the market for use in automotive fuels. It is an alternative, green transport fuel for efficient management of biomass and organic waste.
- Bio-gas is produced naturally through a process of anaerobic decomposition from waste sources like agriculture residue, cattle dung, sugarcane press mud, municipal solid waste, sewage treatment plant waste, etc. After purification, **it is compressed and called CBG, which has pure methane content of over 95%**. Compressed Bio-Gas is exactly similar to the commercially available natural gas in its composition and energy potential. With calorific value (~52,000 KJ/kg) and other properties similar to CNG, Compressed Bio-Gas can be used as an alternative, renewable automotive fuel.

Q 86.C

- The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) is an international agreement between governments that entered into force in 1975, and **became the only treaty to ensure that international trade in plants and animals does not threaten their survival in the wild. Hence, statement 1 is correct.**
- CITES is an international agreement to which States and regional economic integration organizations adhere voluntarily. States that have agreed to be bound by the Convention ('joined' CITES) are known as Parties. **Although CITES is legally binding on the Parties – in other words, they have to implement the Convention – it does not take the place of national laws.** Rather it provides a framework to be respected by each Party, which has to adopt its own domestic legislation to ensure that CITES is implemented at the national level. **Hence, statement 2 is not correct.**
- **CITES is administered through the United Nations Environment Programme(UNEP).** A Secretariat, located in Geneva, Switzerland, oversees the implementation of the treaty and assists with communications between countries. **Hence, statement 3 is correct.**
- Species for which trade is controlled are listed in one of three Appendices to CITES, each conferring a different level of regulation and requiring CITES permits or certificates.

Q 87.D

- **Ammonia (NH3) is a colorless highly reactive and soluble alkaline gas.** It is a prominent constituent of the nitrogen cycle that adversely affects ecosystems at higher concentrations.
- Sources of emissions: o The largest source of NH3 emissions is agriculture, including animal husbandry and NH3-based fertilizer applications.
- Other sources of NH3 include industrial processes, vehicular emissions, volatilization from soils and oceans, decomposition of organic waste, forest fires, animal and human waste, nitrogen fixation processes.

Join Telegram- https://t.me/upsc_success_time1

- **Effects of Ammonia Pollution:**
  - On Environment – **Climate change – Nitrification and Denitrification contribute to greenhouse gas emissions.**
  - **Air Pollution** – Formation of haze-like conditions due to reaction of Ammonia with other oxides and pollutants in the atmosphere. **Hence option 3 is correct.**
  - **Water Pollution** – Toxic to aquatic organisms and contributes to harmful algal blooms and **dead zones with dangerously low oxygen levels. Hence option 2 is correct.**
  - **Ecosystem damage** – **Eutrophication and acidification** effects on semi-natural ecosystems and lead to change in species composition. **Hence option 1 is correct.**
  - **In humans-** Ammonia interacts with moisture present in the skin, eyes, oral cavity, respiratory tract to form ammonium hydroxide, which is very caustic and **disrupts the cell membrane, lipids, ultimately leading to cellular destruction.**
  - **Gaseous Ammonia** reacts with other pollutants in the air to form fine particles of ammonia salts which affect human breathing as well as cause **diseases like pneumonia and asthma.**

Q 88.B

- TRAFFIC is an organization that was established in **1976** by **World Wildlife Fund** (WWF) and **International Union for Conservation of Nature (IUCN)** as a wildlife trade monitoring network to undertake data collection, analysis, and provision of recommendations to inform decision making on wildlife trade. **Hence statement 1 is not correct.**
- For over 40 years TRAFFIC performed that function as a leader in wildlife trade research, as a joint program of WWF and IUCN.
- TRAFFIC became an **independent non-profit organization** in 2017, with WWF and IUCN sitting on its Board of Directors along with independent Board members. **Hence statement 2 is correct.**
- TRAFFIC is renowned globally for its expertise and influence in the wildlife trade and conservation arena, as a provider of objective and reliable information. Its expert staff implement innovative projects and create new tools to deliver the mission of protecting nature and supporting sustainable development, by resolving wildlife trade challenges.
- TRAFFIC is an international network, consisting of TRAFFIC International, based in Cambridge, UK with offices on **five (Africa, Asia, Europe, North and South America)** continents.

Q 89.C

- The Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention; CMS) **is an environmental treaty under the aegis of the United Nations Environment Programme. Hence, statement 2 is correct.**
- It provides a global platform for the conservation and sustainable use of migratory animals and their habitats. **CMS is the only global and UN-based intergovernmental organisation established exclusively for the conservation and management of terrestrial, aquatic and avian migratory species throughout their range. Hence, statement 1 is correct.**
- Migratory species threatened with extinction are listed on Appendix I of the Convention. CMS Parties strive towards strictly protecting these animals, conserving or restoring the places where they live, mitigating obstacles to migration and controlling other factors that might endanger them. Besides establishing obligations for each State joining the Convention, CMS promotes concerted action among the Range States of many of these species.
- Migratory species that need or would significantly benefit from international co-operation are listed in Appendix II of the Convention. For this reason, the Convention encourages the Range States to conclude global or regional agreements.

Q 90.A

- **Recently, a working group headed by former Securities and Exchange Board of India (SEBI) chairman GN Bajpai has suggested that the Insolvency and Bankruptcy Board of India (IBBI)** come up with a standardized framework with a real-time data bank, with data on time, cost and recovery rates together with macroeconomic indicators to assess the success of the five-year-old law and improve its implementation.

Join Telegram- https://t.me/upsc_success_time1

- **About Insolvency & Bankruptcy Code: The Insolvency and Bankruptcy Code (Amendment) Ordinance, 2021 was promulgated on April 4, 2021.** It amends the Insolvency and Bankruptcy Code, 2016. Insolvency is a situation where individuals or companies are unable to repay their outstanding debt.
- The Code provides a time-bound process for resolving the insolvency of corporate debtors and for micro, small, and medium enterprises (MSMEs).
- For corporate debtors the process is to be completed within 330 days called the corporate insolvency resolution process (CIRP) where the debtor himself or its creditors may apply for initiation of CIRP in the event of a default of at least one lakh rupees.
- Pre-packaged insolvency resolution: The Ordinance introduces an alternate insolvency resolution process for micro, small, and medium enterprises (MSMEs), called the pre-packaged insolvency resolution process (PIRP). Unlike CIRP, PIRP may be initiated only by debtors. The debtor should have a base resolution plan in place. During PIRP, the management of the company will remain with the debtor.
- **Hence option (a) is the correct answer.**

Q 91.C

- The **Energy Conservation Building Code (ECBC) was launched in May 2007 by the Bureau of Energy Efficiency (BEE), Ministry of Power.** Its main objective is to establish minimum requirements for energy-efficient design and construction of buildings. India's two-thirds of the total building stock that will exist in 2030 are yet to be built. New buildings possess a great challenge to meeting their increasing energy demand. ECBC sets minimum energy efficiency levels for commercial buildings, locking in energy savings for years to come, retaining occupant comfort while combating climate change. **Hence statement 1 is not correct**
- The ECBC applies to all buildings or building complexes that have a connected load of 100 kW or greater, or a contract demand of 120 kVA or greater and are used for commercial purposes. **It is applicable for both Government and private buildings.** The code does not apply to Equipment and portions of building systems that use energy primarily for manufacturing processes. **Hence statement 2 is correct.**
- **ECBC addresses only the energy efficiency of buildings and not the water efficiency as such.** Water and other aspects are generally covered in green building rating systems. **Hence statement 3 is not correct.**

Q 92.B

- National Mission for Enhanced Energy Efficiency (NMEEE) is one of the eight national missions under the National Action Plan on Climate Change (NAPCC) that was released in June 2008 by the Government of India. **The primary objective of the mission is to develop regulations and policies that are instrumental in strengthening the market for energy efficiency.**
- The initiatives that come under NMEEE are as follows:
  - **Perform, Achieve and Trade (PAT) scheme**
  - **Market Transformation for Energy Efficiency (MTEE)**

Join Telegram- https://t.me/upsc_success_time1

- Energy Efficiency Financing Platform (EEFP)
- **Framework for Energy Efficient Economic Development (FEEED). Hence statement 2 is correct**

- PAT is a mechanism designed to achieve the required energy efficiency in energy intensive sectors. Energy consumption norms and standards are set by the BEE for intensive industry sectors. Selected energy intensive entities are identified as Designated Consumers (DCs) within certain key sectors, who are required to comply with the notified norms, rules and regulations framed under Energy Conservation (EC) Act, 2001
- The Framework for Energy Efficient Economic Development (FEEED) is to build the market for energy efficiency it is imperative to ease the financing of energy efficiency projects, appliances and technologies.
- NMEEE furthers the objective of The Energy Conservation Act by focusing on enhanced energy efficiency measures with four specific initiatives under its overall ambit. **The Ministry of Power, Government of India, through Bureau of Energy Efficiency (BEE), looks over the progress of the NMEEE mission. Hence statement 1 is not correct**

Q 93.C

- **Recently, 20th meeting of the Shanghai Cooperation Organization (SCO) council of heads of government took place on November 25 in Nur-Sultan in virtual format under the chairmanship of Kazakhstan.**
- SCO is a permanent intergovernmental international organization announced in 2001 in Shangai (China). It originated from Shanghai five (China, Kazakhstan, Kyrgyzstan, Russia and Tajikistan) grouping of 1996. **Hence, statement 1 is correct.**
- The SCO currently comprises eight **Member States** (China, India, Kazakhstan, Kyrgyzstan, Russia, Pakistan, Tajikistan and Uzbekistan), four **Observer States** interested in acceding to full membership (Afghanistan, Belarus, Iran, and Mongolia) and six **"Dialogue Partners"** (Armenia, Azerbaijan, Cambodia, Nepal, Sri Lanka and Turkey). **Hence, statement 2 is not correct.**
- In 2021, the decision was made to start the accession process of Iran to the SCO as a full member, and Egypt, Qatar as well as Saudi Arabia became dialogue partners.
- Since its inception in 2001, the SCO has mainly focused on regional security issues, its fight against regional terrorism, ethnic separatism and religious extremism. To date, the SCO's priorities also include regional development. **Hence, statement 3 is correct.**

Q 94.C

- The e-Green Watch is a web-based and user friendly application that is transparent, reliable and accountable. It is an **integrated e-governance portal** that enables the temporal change detection **for the effective online monitoring and evaluation of works in forestry sector undertaken by State CAMPA**. **Hence statement 1 is correct.**
- It is a holistic approach to facilitate the automation of various management processes related to utilization of CAMPA and other funds provided by states under various centrally sponsored schemes for plantation and other forestry related works.
- The application is capable of showing the Compensatory Afforestation, Diverted Land, Plantations, other Plantations and Assets categories on the Google earth imageries and FSI portal.
- The e-Green Watch **scheme of the MoEFCC** is being **implemented by the states** in **consultation with FSI** since 2012. **Hence statement 2 is correct.**
  - This initiative was conceived with a view to ensure automation, streamlining and effective management of processes related to utilisation of CAMPA and all other funds earmarked by states under various central or state government schemes for plantation and other forestry related works.
  - Due to discrepancies in implementation of compensatory afforestation, **Supreme Court on July10, 2009 ordered a Compensatory Afforestation Fund Management & Planning Authority (CAMPA)** as the national advisory council under MoEFCC. Its aim was to monitor technical assistance and evaluate compensatory afforestation activities. The same was institutionalized under the Compensatory Afforestation Fund Act, 2016. The SC in its order also talked about need for an information system to monitor compensatory afforestation activities, following which e-Green Watch was created in 2012.

Q 95.C

- Nuclear fission in the reactor core produces a lot of heat which if not controlled can lead to a meltdown of fuel rods in the reactor core. If a meltdown happens by accident, it will release large quantities of highly dangerous radioactive materials in the environment with disastrous consequences to humans, animals, and plants. To prevent this type of accident and reactor blow-up, the reactors are designed to have a number of safety features.

Join Telegram- https://t.me/upsc_success_time1

- In spite of these safety measures, many accidents have taken place in history which are -
- **Kyshtym disaster (1957)**
  - **Kyshtym disaster, the explosion of buried nuclear waste from a plutonium-processing plant near Kyshtym, Chelyabinsk oblast, Russia (then in the U.S.S.R.), on September 29, 1957**. Until 1989 the Soviet government refused to acknowledge that the event had occurred, even though about 9,000 square miles (23,000 square km) of land were contaminated, more than 10,000 people were evacuated, and probably hundreds died from the effects of radioactivity.
  - After details became known, the I**nternational Atomic Energy Agency classed the Kyshtym disaster as a Level 6 accident on the International Nuclear and Radiological Event Scale. Only the subsequent nuclear disasters at Chernobyl and Fukushima have been classed at the seventh and highest level of severity.**
- The **Chernobyl accident (Ukraine) in 1986:** It was the result of a flawed reactor design that was operated with inadequately trained personnel.
  - The resulting steam explosion and fires released at least 5% of the radioactive reactor core into the environment, with the deposition of radioactive materials in many parts of Europe.
  - Two Chernobyl plant workers died due to the explosion on the night of the accident, and a further 28 people died within a few weeks as a result of acute radiation syndrome.
  - The United Nations Scientific Committee on the Effects of Atomic Radiation has concluded that, apart from some 5000 thyroid cancers (resulting in 15 fatalities), "there is no evidence of a major public health impact attributable to radiation exposure 20 years after the accident."
- **The Three Mile Island (1979)**
  - **Unit 2 reactor, near Middletown, partially melted down on March 28, 1979.** This was the most serious accident in U.S. commercial nuclear power plant operating history, although its small radioactive releases had no detectable health effects on plant workers or the public. Its aftermath brought about sweeping changes involving emergency response planning, reactor operator training, human factors engineering, radiation protection, and many other areas of nuclear power plant operations
- **Fukushima Daiichi reactors, Japan (2011)**
  - Following a major earthquake, a 15-meter tsunami disabled the power supply and cooling of **three Fukushima Daiichi reactors (Japan), causing a nuclear accident beginning on 11 March 2011. All three cores largely melted in the first three days.**
  - The accident was rated level 7 on the International Nuclear and Radiological Event Scale, due to high radioactive releases over days 4 to 6, eventually a total of some 940 PBq (I-131 eq).
  - After two weeks, the three reactors (units 1-3) were stable with water addition and by July they were being cooled with recycled water from the new treatment plant. Official 'cold shutdown condition' was announced in mid-December.
  - There have been no deaths or cases of radiation sickness from the nuclear accident, but over 100,000 people were evacuated from their homes as a preventative measure. Government nervousness has delayed the return of many.
- **Hence option (c) is the correct answer.**

Q 96.C

- **The International Telecommunication Union (ITU), in cooperation with the Sustainable Cycles (SCYCLE) Programme, co-hosted at the United Nations University (UNU) and United Nations Institute for Training and Research (UNITAR), and the Solid Waste Association (ISWA), joined forces to create the Global e-waste Statistics Partnership (GESP). Hence option (c) is the correct answer.**
- Its main objectives are to **improve and collect worldwide e-waste statistics in an internationally standardized way**. The Partnership will also raise visibility on the importance of tracking e-waste, and delivering capacity-building workshops.
- **In July 2020, the GESP published the Global E-waste Monitor 2020,** now its third edition, which shows continued global growth in the generation of e-waste. A record 53.6 million metric tonnes (Mt) of electronic waste was generated worldwide in 2019, up 21 percent in just five years, according to the UN's Global E-waste Monitor 2020, released today.
- The new report also predicts global e-waste - discarded products with a battery or plug - will reach 74 Mt by 2030, **almost a doubling of e-waste in just 16 years.** This makes e-waste the world's fastest-growing domestic waste stream, fueled mainly by higher consumption rates of electric and electronic equipment, short life cycles, and few options for repair.

Join Telegram- https://t.me/upsc_success_time1

- **Only 17.4 percent of 2019's e-waste was collected and recycled**. This means that gold, silver, copper, platinum, and other high-value, recoverable materials conservatively valued at US $57 billion -- a sum greater than the Gross Domestic Product of most countries – were mostly dumped or burned rather than being collected for treatment and reuse.
- According to the report, **Asia generated the greatest volume of e-waste in 2019 — some 24.9 Mt, followed by the Americas (13.1 Mt) and Europe (12 Mt), while Africa and Oceania generated 2.9 Mt and 0.7 Mt respectively.**

Q 97.B

- **Recently the Central government has promulgated two ordinances that would allow the Centre to extend the tenures of the directors of the Central Bureau of Investigation and the Enforcement Directorate from two years to up to five years.**
- The **Central Bureau of Investigation** traces its origin to the Special Police Establishment (SPE), 1941. Later the **Delhi Special Police Establishment Act** was brought into force in 1946 and the CBI's power to investigate cases is derived from this Act.
- The **Directorate of Enforcement** was established in the year 1956 with its Headquarters at New Delhi. It is responsible for enforcement of the **Foreign Exchange Management Act, 1999 (FEMA)** and certain provisions under the **Prevention of Money Laundering Act.** The Directorate is under the administrative control of Department of Revenue for operational purposes; the policy aspects of the FEMA, its legislation and its amendments are within the purview of the Department of Economic Affairs. **Hence, statement 1 is not correct.**
- The chiefs of the Central agencies currently have a fixed two-year tenure, but can now be given three annual extensions. **Hence, statement 2 is correct.**
- While the change in tenure of the CBI Director was effected by amending the **Delhi Special Police Establishment Act, 1946**, the changes to the tenure of the ED Director was brought in by amending the **Central Vigilance Commission Act, 2003.**

Q 98.B

- **Recently, United Nations General Assembly graduated three nations (Bangladesh, Nepal and Laos) from Least Developed Countries (LDC) category to the developing country grouping.**
- The membership to developing country category is revised every three years based on:
  - **Gross National Product (GNI) per capita** ($1222 or above): GNI per capita provides information on the income status and the overall level of resources available to a country.
  - **Human Assets Index (HAI)** (66 or above): The HAI is composed of six indicators grouped into a health and education sub-index with each indicator carrying an equal weight of 1/6.
    - The six indicators are: Health Index- Under-5 mortality rate, Prevalence of stunting and maternal Mortality rate. Education Index- Gross Secondary School enrollment ratio, Adult literacy Rate and Gender Parity Index for gross secondary school enrollment.
  - **Economic and Environment Vulnerability Index (EVI)** (32 or above): The EVI is composed of eight indicators, grouped into an economic and environmental sub-index with each indicator carrying an equal weight of 1/8.
    - The eight indicator are: Economic Vulnerability index- Share of Agriculture, forestry, fisheries in GDP, remoteness and landlockedness, merchandise export concentration and instability of exports of goods and services. Environmental vulnerability index- Share of population in low elevated coastal zones, share of population living in drylands, instability of agricultural production and victims of disaster.
- To qualify in to the developing country category, the threshold must be met for any two of the three criteria in two consecutive triennial reviews.
- **Hence, option (b) is the correct answer.**

Q 99.B

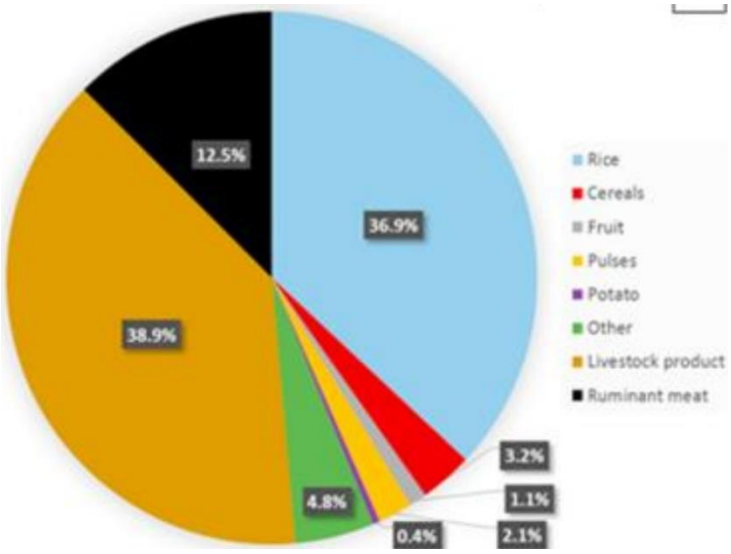
- The **Cartagena Protocol on Biosafety** to the Convention on Biological Diversity is an international agreement which aims to ensure the safe handling, transport and use of living modified organisms (LMOs) resulting from modern biotechnology that may have adverse effects on biological diversity, taking also into account risks to human health.
  - It was adopted on **29 January 2000** and entered into force on **11 September 2003**.
- The **Nagoya Protocol on Access to Genetic Resources** and the Fair and Equitable Sharing of Benefits Arising from their Utilization to the Convention on Biological Diversity is an international agreement

Join Telegram- https://t.me/upsc_success_time1

which aims at sharing the benefits arising from the utilization of genetic resources in a fair and equitable way.
    - The Nagoya Protocol on ABS was adopted on **29 October 2010** in Nagoya, Japan and entered into force on 12 October 2014, 90 days after the deposit of the fiftieth instrument of ratification.
- The Aichi Biodiversity targets were included in the Strategic Plan for Biodiversity for the **2011-2020** period adopted by the **10th meeting of the Conference of the Parties** of the Convention on Biological Diversity in **2010**.
- The **Biological Diversity Act, 2002** is an Act enacted by the Parliament of India for the preservation of biological diversity in India, and provides mechanism for equitable sharing of benefits arising out of the use of traditional biological resources and knowledge.
- **Hence option (b) is the correct answer.**

Q 100.D

- **In India agriculture and livestock accounts for 18% of gross national emissions, the thirdhighest sector after energy and industry.**
- Most of the GHG emission from Indian agriculture takes places from states like **Punjab, Haryana, UP, Bihar, West Bengal etc.** Major sources of emissions: **Enteric fermentation, rice cultivation, methane from manure, synthetic fertilizers, crop residues and inefficient irrigation.**
- Enteric fermentation: is a natural part of the digestive process in ruminant animals such as cattle, sheep, goats, and buffalo. Microbes in the digestive tract, or rumen, decompose and ferment food, producing methane as a byproduct.



- **Hence option (d) is the correct answer.**

Copyright © by Vision IAS

All rights are reserved. No part of this document may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, without prior permission of Vision IAS.

Join Telegram- https://t.me/upsc_success_time1